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Saito et al.

(10) **Patent No.: US 6,208,426 B1**
(45) **Date of Patent: *Mar. 27, 2001**

(54) **FACSIMILE COMMUNICATION METHOD AND FACSIMILE MACHINE**

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(73) Assignee: **Matsushita Graphic Communication Systems, Inc.**, Tokyo (JP)

(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(22) PCT Filed: **Mar. 6, 1997**

(86) PCT No.: **PCT/JP97/00694**

§ 371 Date: **Oct. 14, 1997**

§ 102(e) Date: **Oct. 14, 1997**

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PCT Pub. Date: **Oct. 16, 1997**

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Apr. 4, 1996 (JP) 8-082295

(51) **Int. Cl.**[7] **G06F 15/00**; H04N 1/00; H04M 11/00

(52) **U.S. Cl.** **358/1.15**; 358/402; 379/100.01

(58) **Field of Search** 358/402, 403, 358/404, 405, 434, 440, 442, 444, 468, 1.15; 379/100.01, 100.06, 100.08, 100.13, 93.01, 93.15, 93.24

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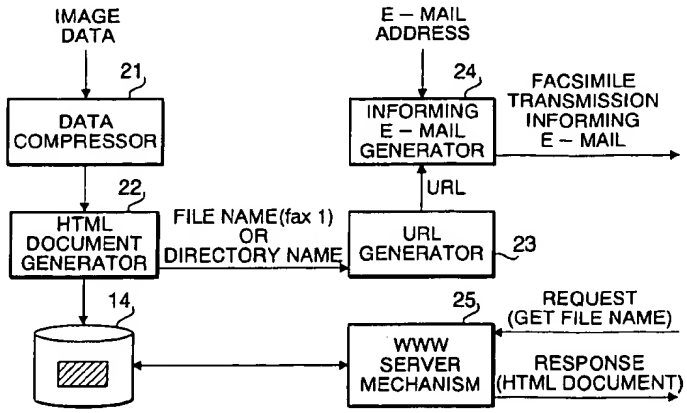
(57) **ABSTRACT**

In a facsimile communication method for transmitting facsimile data to a reception terminal from a facsimile machine via a communication network, a transmission process in the facsimile machine includes the following steps: (a) a step of saving image data of an original to be transmitted as facsimile data in a storage; (b) a step of generating access information data for access to the image data, saved in the storage, from the reception terminal via the transmission network; (c) a step of sending the access information data to the reception terminal by an e-mail; and (d) a step of transmitting the image data in the storage to the reception terminal from the facsimile machine by a communication protocol of a point-to-point data transfer form upon reception of an access request for the image data from the reception terminal.

21 Claims, 18 Drawing Sheets



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6-90252		3/1994	(JP).
6164645		6/1994	(JP).
7-74916		3/1995	(JP).
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Copy of a PCT Search Report issued with PCT/JP97/00694.
"The Multimedia Fax–Mine Gateway" by Sanjiv P. Patel, et al., pp. 64–70, which was published in IEEE Multimedia, (vol. 1, No. 4, Dec. 21, 1994).

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FIG. 1

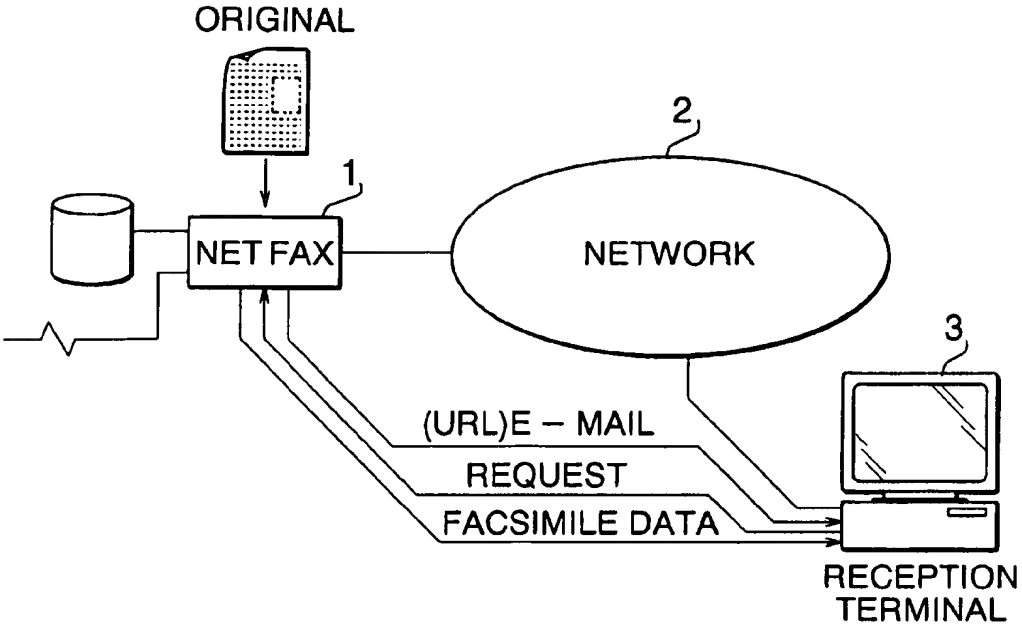

ORIGINAL
2
1
NET FAX
NETWORK
3
(URL)E – MAIL
REQUEST
FACSIMILE DATA
RECEPTION
TERMINAL

FIG. 2

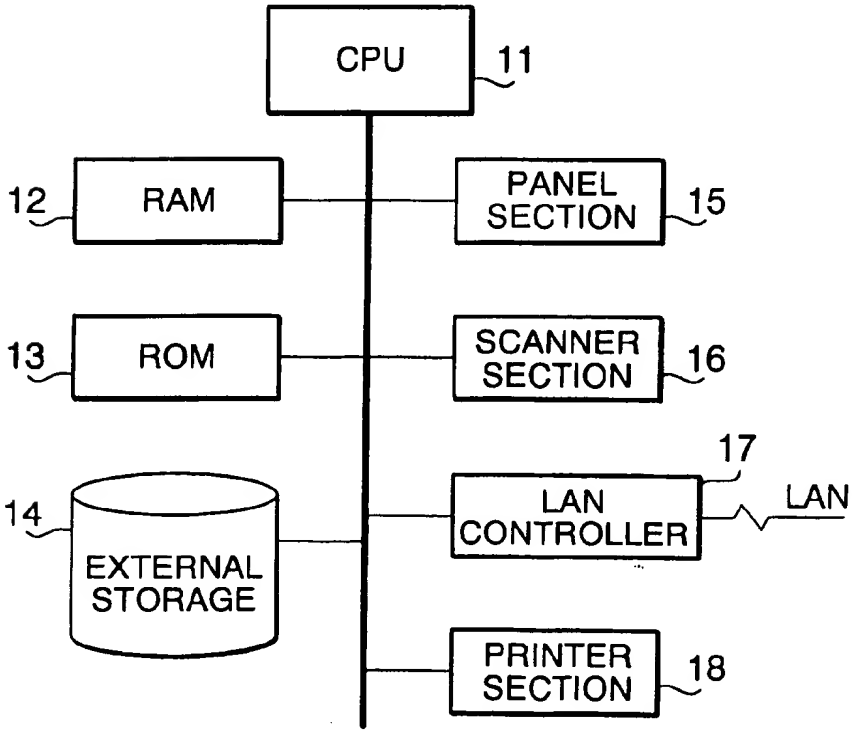

CPU
11
12
RAM
PANEL
SECTION
15
13
ROM
SCANNER
SECTION
16
17
14
EXTERNAL
STORAGE
LAN
CONTROLLER
LAN
PRINTER
SECTION
18

FIG. 3

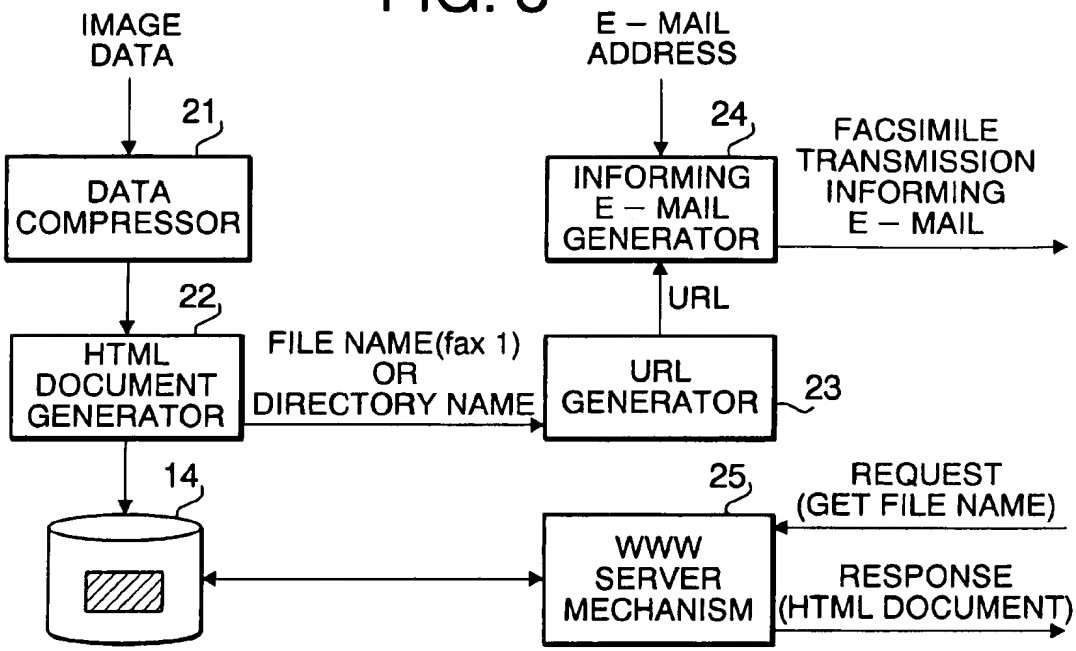
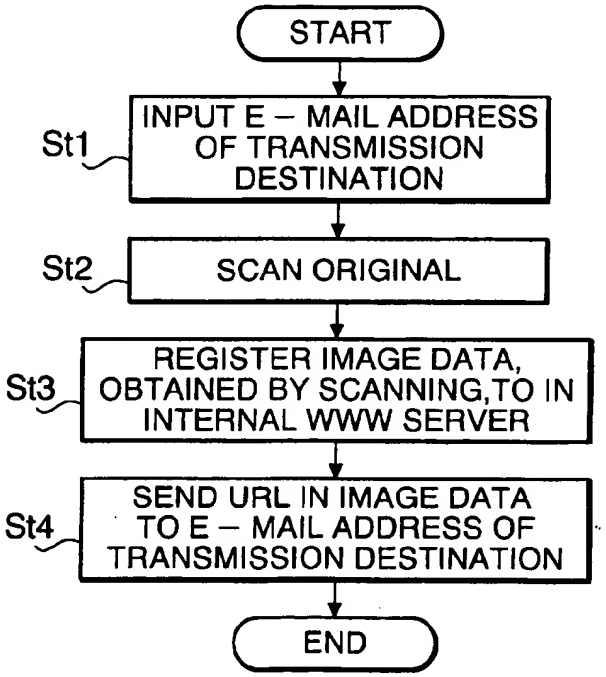


IMAGE DATA
21
DATA COMPRESSOR
22
HTML DOCUMENT GENERATOR
14
FILE NAME(fax 1) OR DIRECTORY NAME
E – MAIL ADDRESS
24
INFORMING E – MAIL GENERATOR
FACSIMILE TRANSMISSION INFORMING E – MAIL
URL
URL GENERATOR
23
25
REQUEST (GET FILE NAME)
WWW SERVER MECHANISM
RESPONSE (HTML DOCUMENT)

FIG. 4


START
St1
INPUT E – MAIL ADDRESS OF TRANSMISSION DESTINATION
St2
SCAN ORIGINAL
St3
REGISTER IMAGE DATA, OBTAINED BY SCANNING,TO IN INTERNAL WWW SERVER
St4
SEND URL IN IMAGE DATA TO E – MAIL ADDRESS OF TRANSMISSION DESTINATION
END

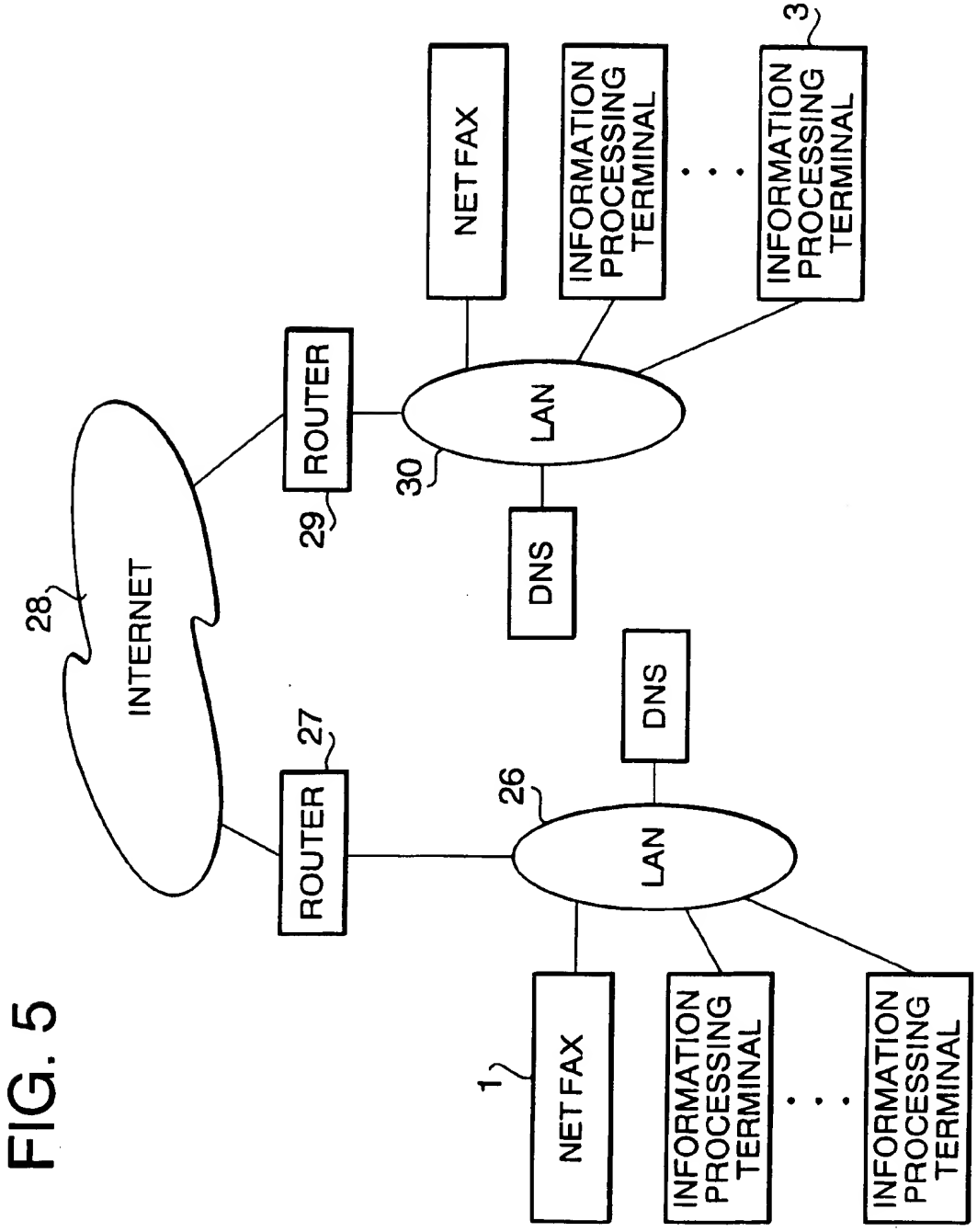

INTERNET
28
ROUTER
29
ROUTER
27
LAN
30
LAN
26
DNS
DNS
NET FAX
INFORMATION PROCESSING TERMINAL
INFORMATION PROCESSING TERMINAL
3
NET FAX
1
INFORMATION PROCESSING TERMINAL
INFORMATION PROCESSING TERMINAL

FIG. 5

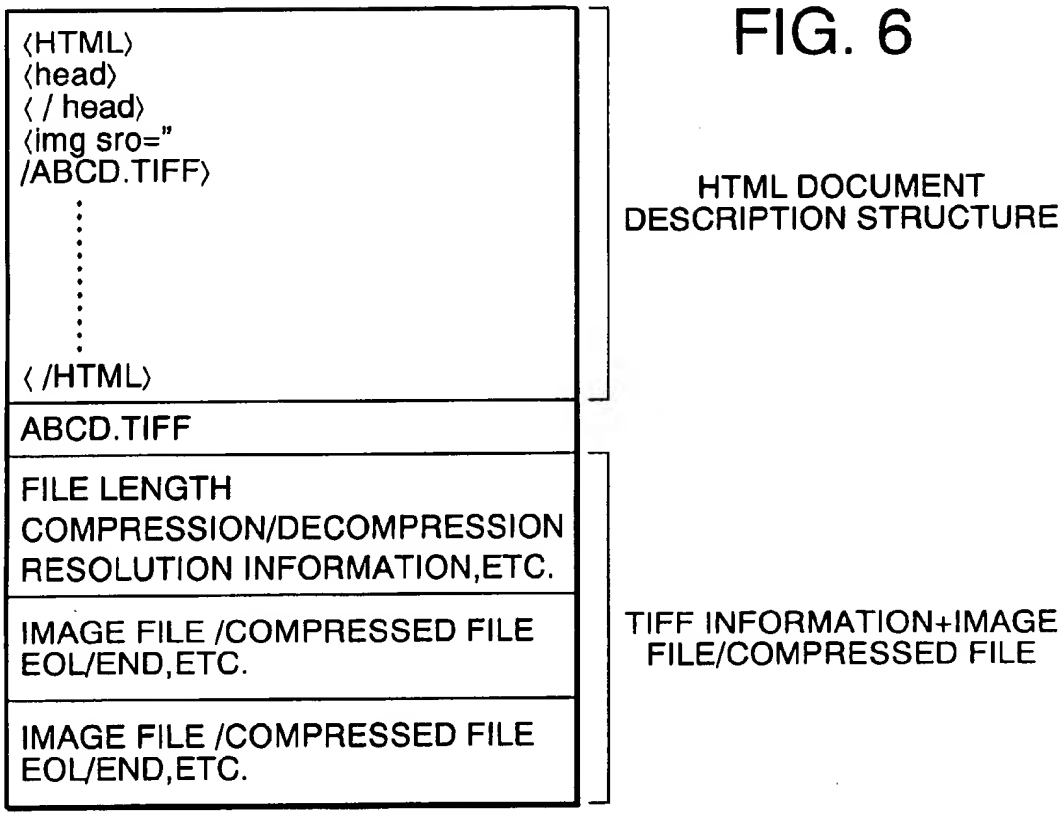


FIG. 6

FIG. 7

E – MAIL FOR INFORMING
FACSIMILE TRANSMISSION

TRANSMISSION DESTINATION: × × × ×
COPY DESTINATION: × × × ×
SENDER: × × × ×
TITLE: INFORMING FACSIMILE TRANSMISSION
TEXT http://WWW.NETFAX mgcs.JP/index. fax 1

FIG. 8

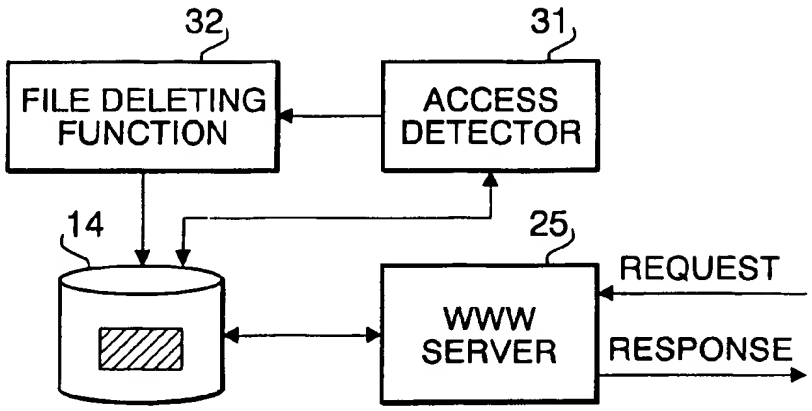

32
31
FILE DELETING FUNCTION
ACCESS DETECTOR
14
25
REQUEST
WWW SERVER
RESPONSE

FIG. 9

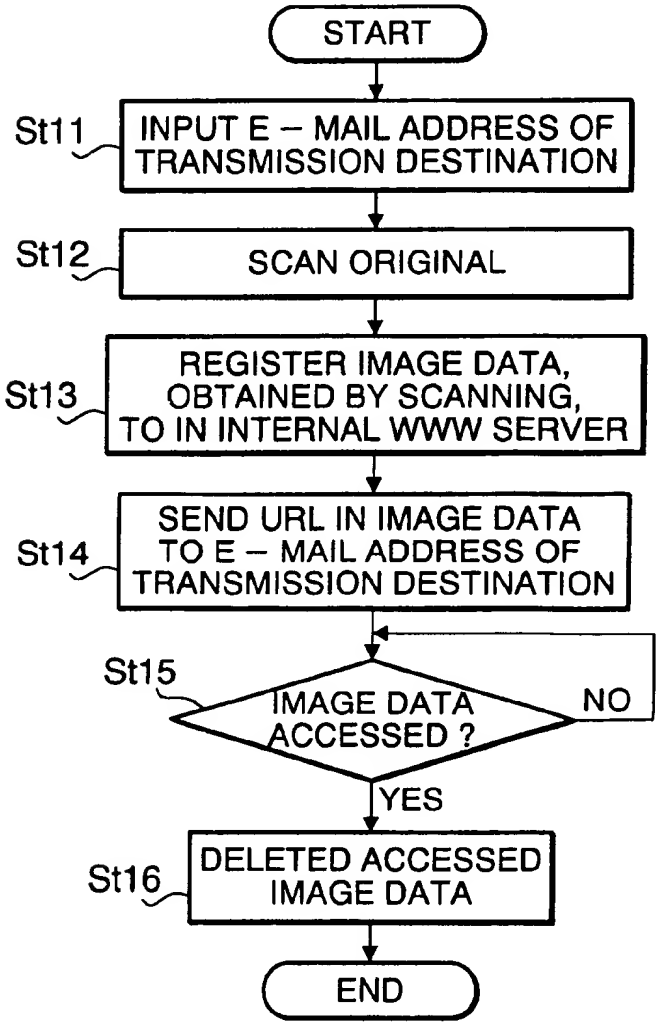

START
St11
INPUT E – MAIL ADDRESS OF TRANSMISSION DESTINATION
St12
SCAN ORIGINAL
St13
REGISTER IMAGE DATA, OBTAINED BY SCANNING, TO IN INTERNAL WWW SERVER
St14
SEND URL IN IMAGE DATA TO E – MAIL ADDRESS OF TRANSMISSION DESTINATION
St15
IMAGE DATA ACCESSED ?
NO
YES
St16
DELETED ACCESSED IMAGE DATA
END

FIG. 10

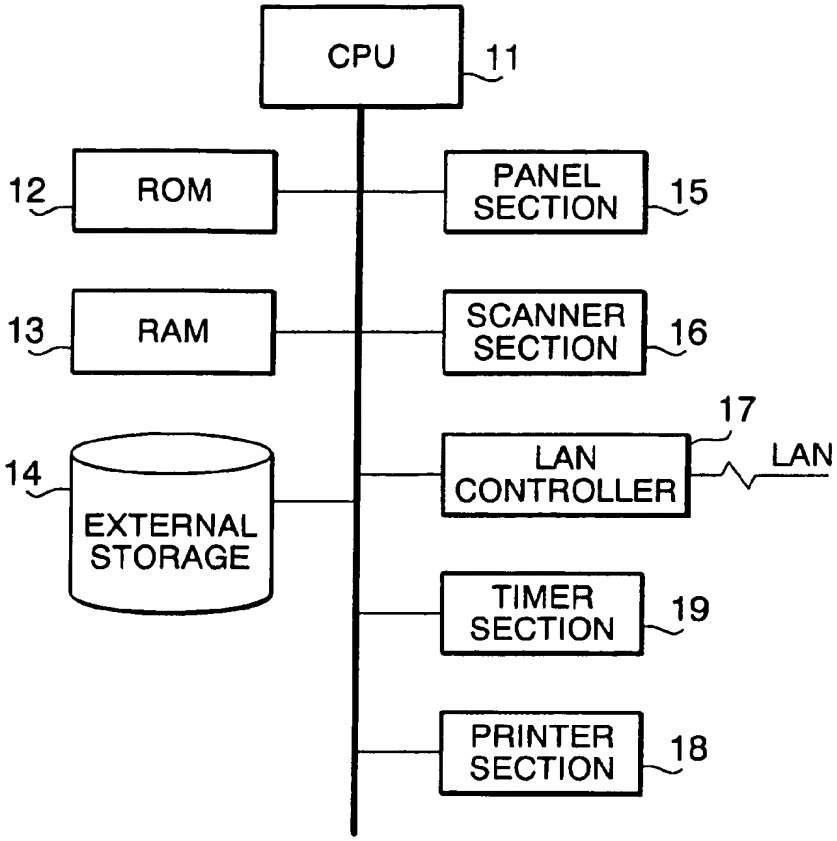

CPU
11
12
ROM
PANEL SECTION
15
13
RAM
SCANNER SECTION
16
17
14
EXTERNAL STORAGE
LAN CONTROLLER
LAN
TIMER SECTION
19
PRINTER SECTION
18

FIG. 11

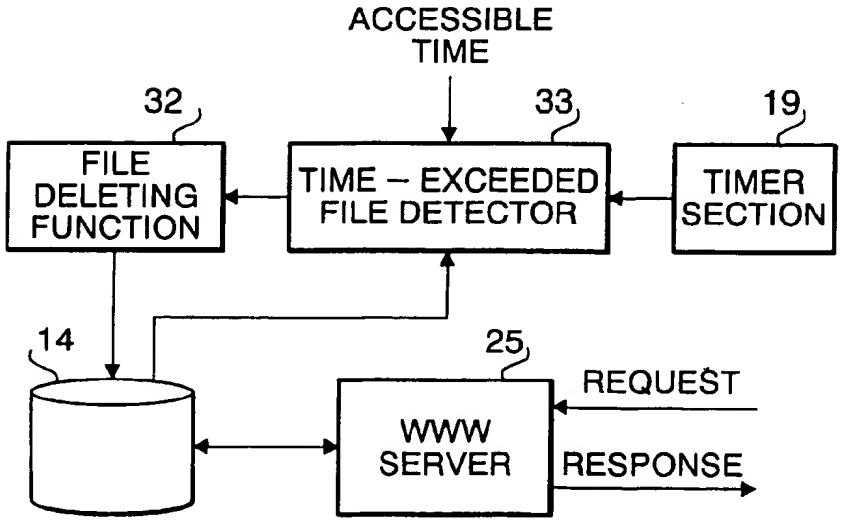

ACCESSIBLE TIME
32
33
19
FILE DELETING FUNCTION
TIME – EXCEEDED FILE DETECTOR
TIMER SECTION
14
25
REQUEST
WWW SERVER
RESPONSE

FIG. 12

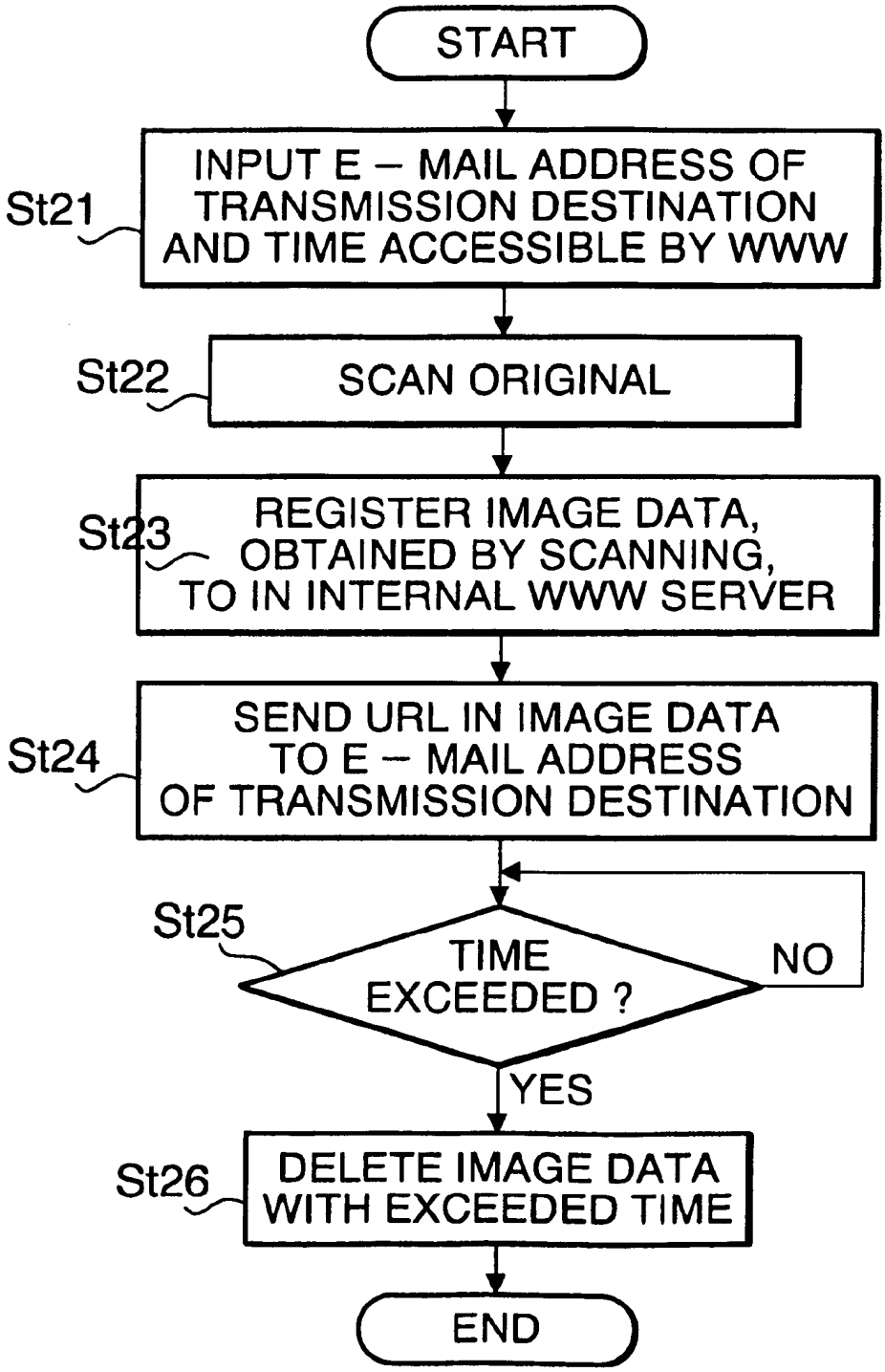

START
St21
INPUT E – MAIL ADDRESS OF TRANSMISSION DESTINATION AND TIME ACCESSIBLE BY WWW
St22
SCAN ORIGINAL
St23
REGISTER IMAGE DATA, OBTAINED BY SCANNING, TO IN INTERNAL WWW SERVER
St24
SEND URL IN IMAGE DATA TO E – MAIL ADDRESS OF TRANSMISSION DESTINATION
St25
TIME EXCEEDED ?
NO
YES
St26
DELETE IMAGE DATA WITH EXCEEDED TIME
END

FIG. 13

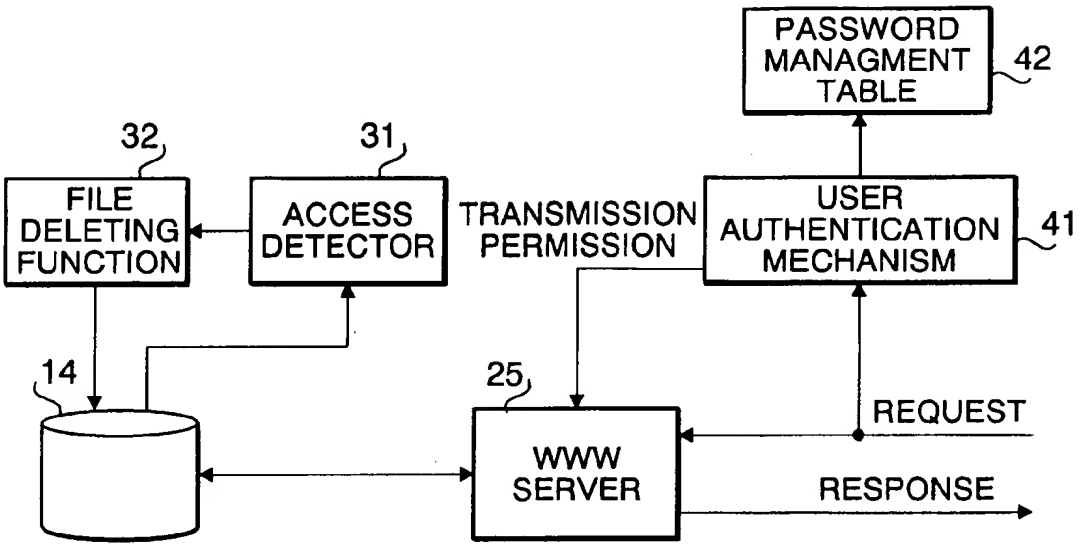


FIG. 14

USER DOMAIN INFORMATION OF TRANSMISSION DESTINATION	NAMES OF FILES TO BE TRANSMITTED	PASSWORDS
××××	fax 1	××××
××××	fax 2	○○○○
××××	fax 3	×○○×

FIG. 15

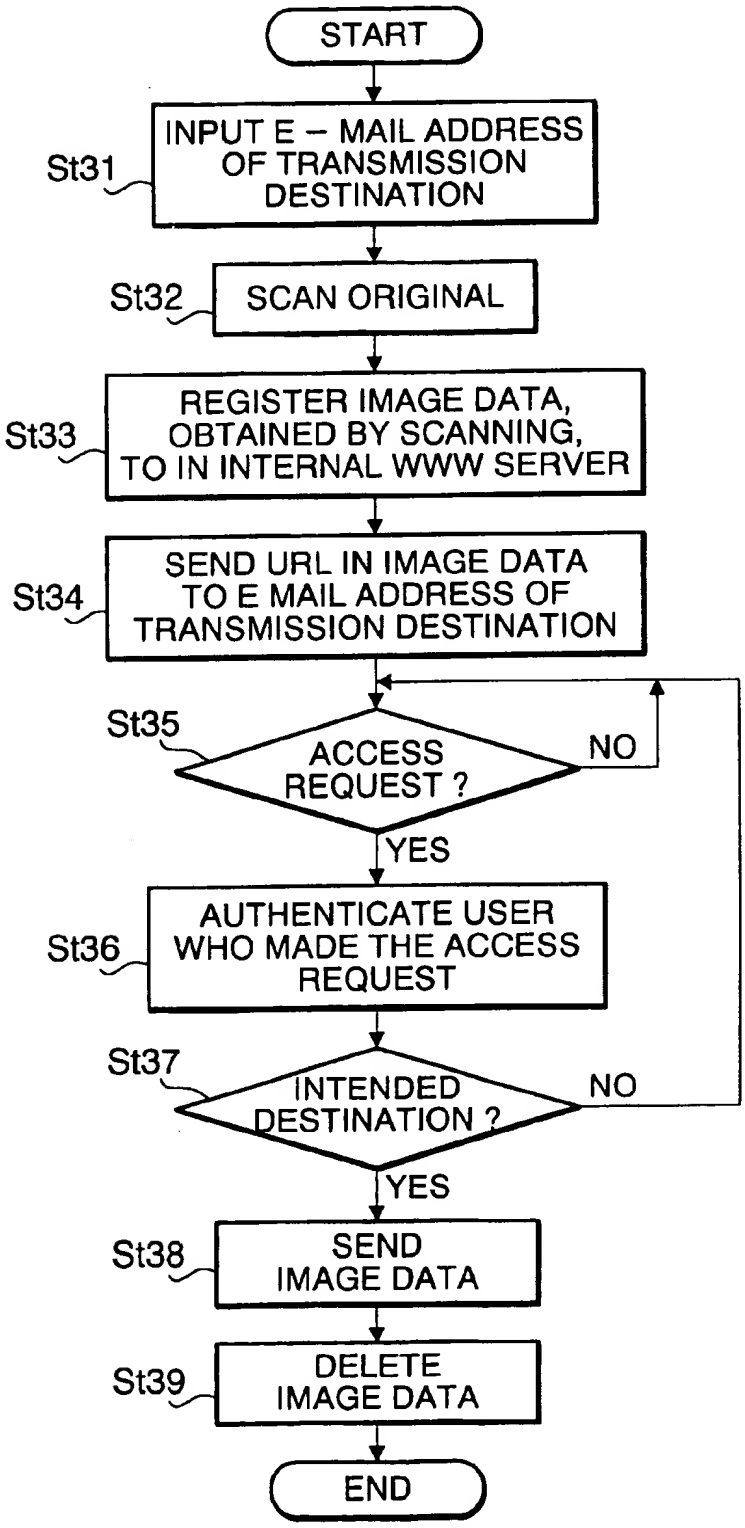

START
St31
INPUT E – MAIL ADDRESS OF TRANSMISSION DESTINATION
St32
SCAN ORIGINAL
St33
REGISTER IMAGE DATA, OBTAINED BY SCANNING, TO IN INTERNAL WWW SERVER
St34
SEND URL IN IMAGE DATA TO E MAIL ADDRESS OF TRANSMISSION DESTINATION
St35
ACCESS REQUEST ?
NO
YES
St36
AUTHENTICATE USER WHO MADE THE ACCESS REQUEST
St37
INTENDED DESTINATION ?
NO
YES
St38
SEND IMAGE DATA
St39
DELETE IMAGE DATA
END

FIG. 16

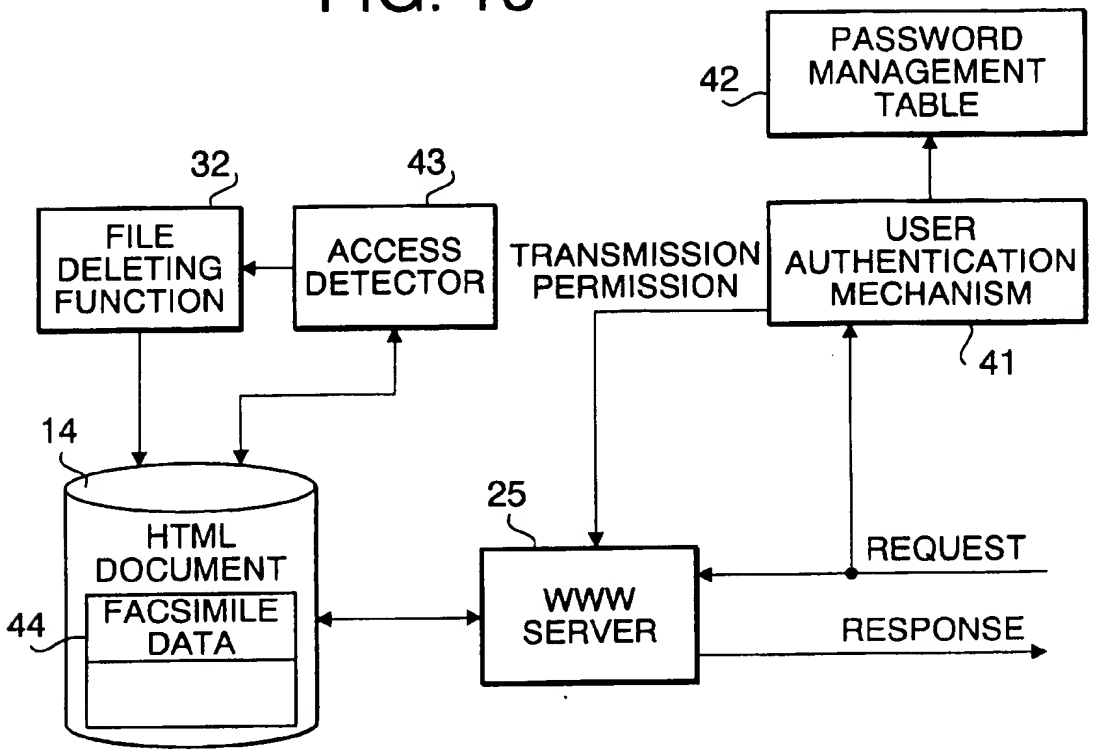


FIG. 17

ACCESS CONFIRMATION COLUMN

DESTINATIONS OF MULTI – CAST	PRESENCE/ABSENCE OF ACCESS
××××	○
○○○○	○
○ ×××	×
○○ ××	×

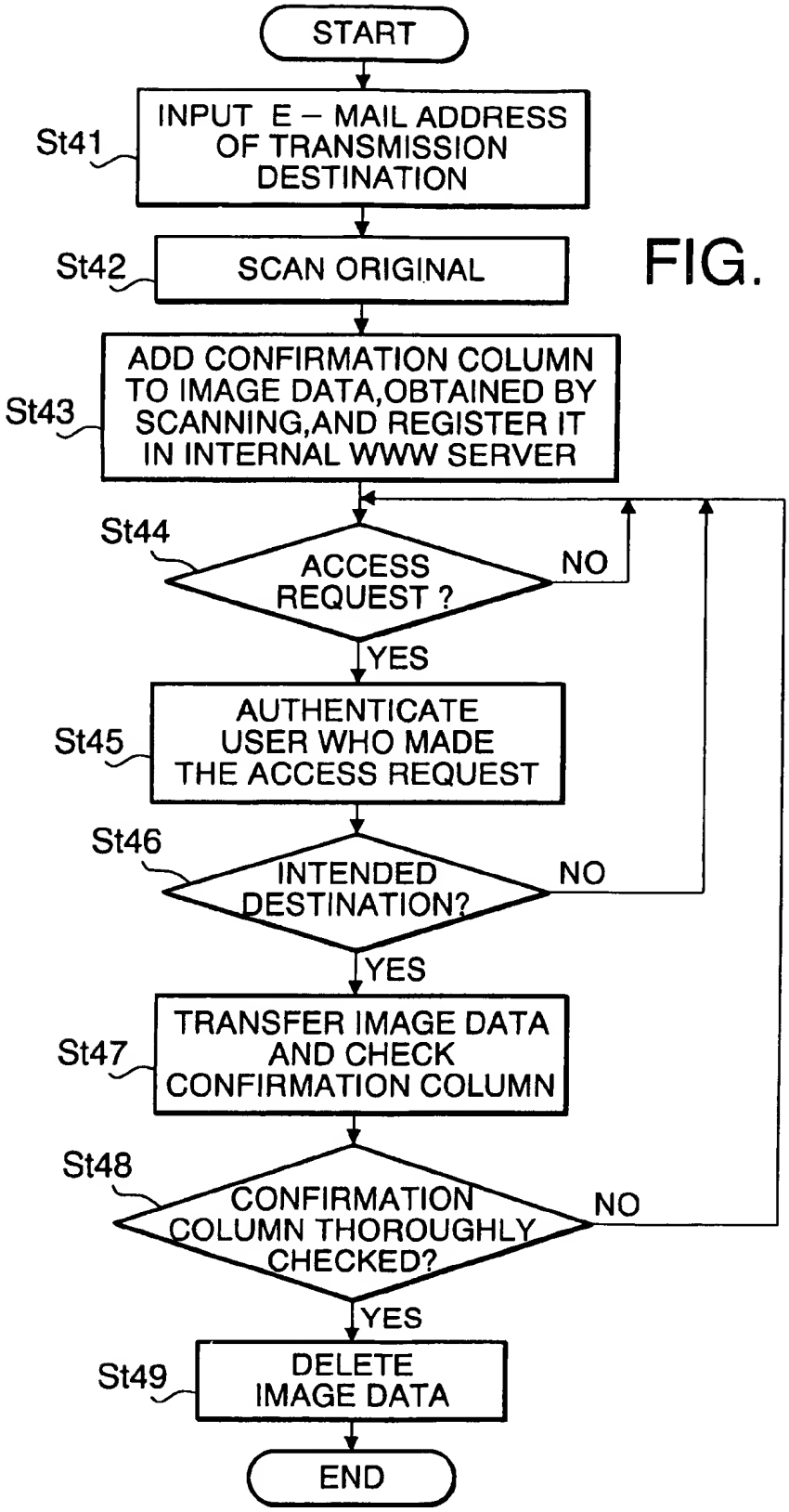
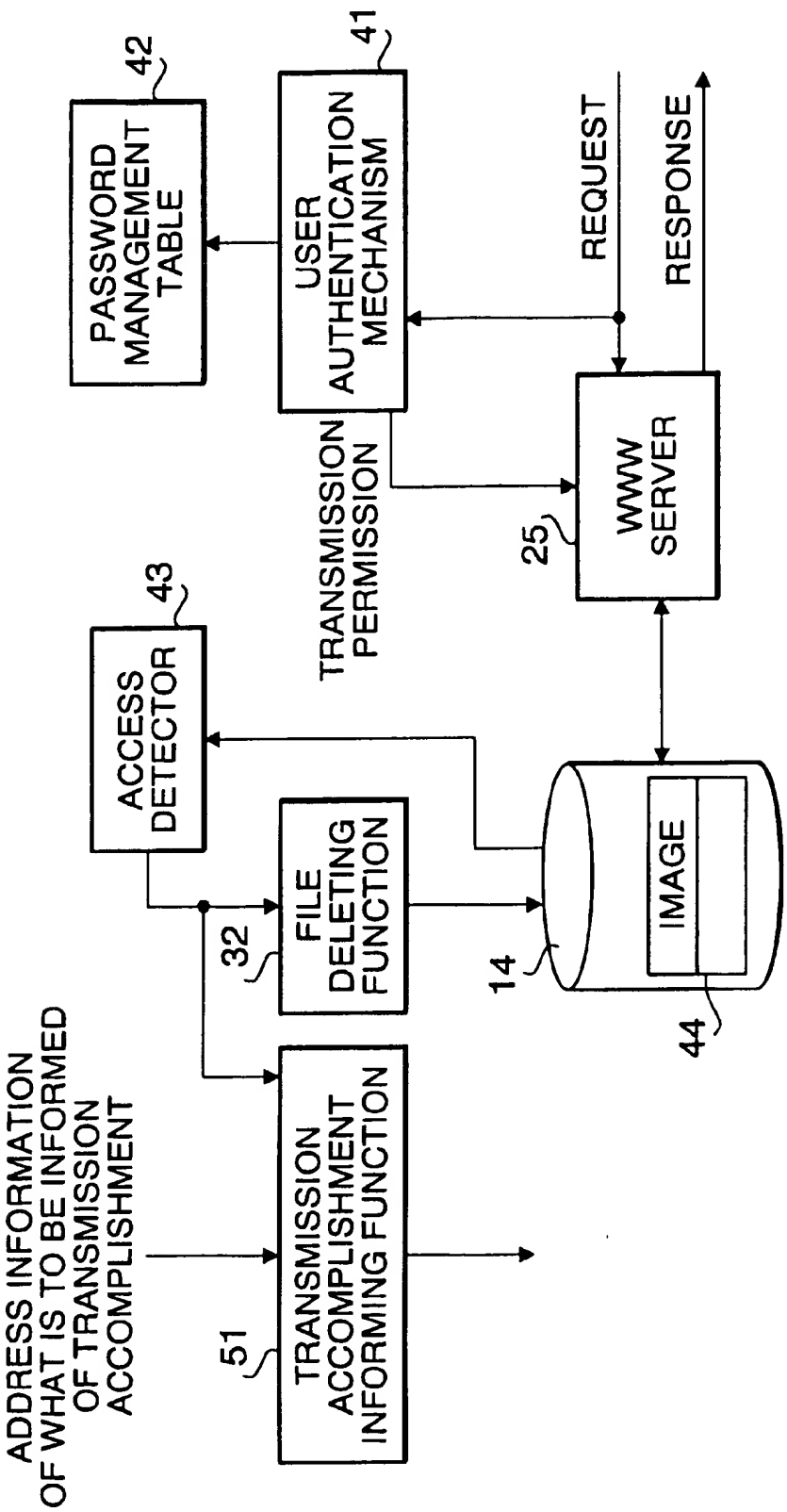

START
St41
INPUT E – MAIL ADDRESS OF TRANSMISSION DESTINATION
St42
SCAN ORIGINAL
St43
ADD CONFIRMATION COLUMN TO IMAGE DATA,OBTAINED BY SCANNING,AND REGISTER IT IN INTERNAL WWW SERVER
St44
ACCESS REQUEST ?
NO
YES
St45
AUTHENTICATE USER WHO MADE THE ACCESS REQUEST
St46
INTENDED DESTINATION?
NO
YES
St47
TRANSFER IMAGE DATA AND CHECK CONFIRMATION COLUMN
St48
CONFIRMATION COLUMN THOROUGHLY CHECKED?
NO
YES
St49
DELETE IMAGE DATA
END

FIG. 18

FIG. 19


42
PASSWORD MANAGEMENT TABLE
41
USER AUTHENTICATION MECHANISM
REQUEST
RESPONSE
TRANSMISSION PERMISSION
25
WWW SERVER
43
ACCESS DETECTOR
32
FILE DELETING FUNCTION
14
IMAGE
44
ADDRESS INFORMATION OF WHAT IS TO BE INFORMED OF TRANSMISSION ACCOMPLISHMENT
51
TRANSMISSION ACCOMPLISHMENT INFORMING FUNCTION

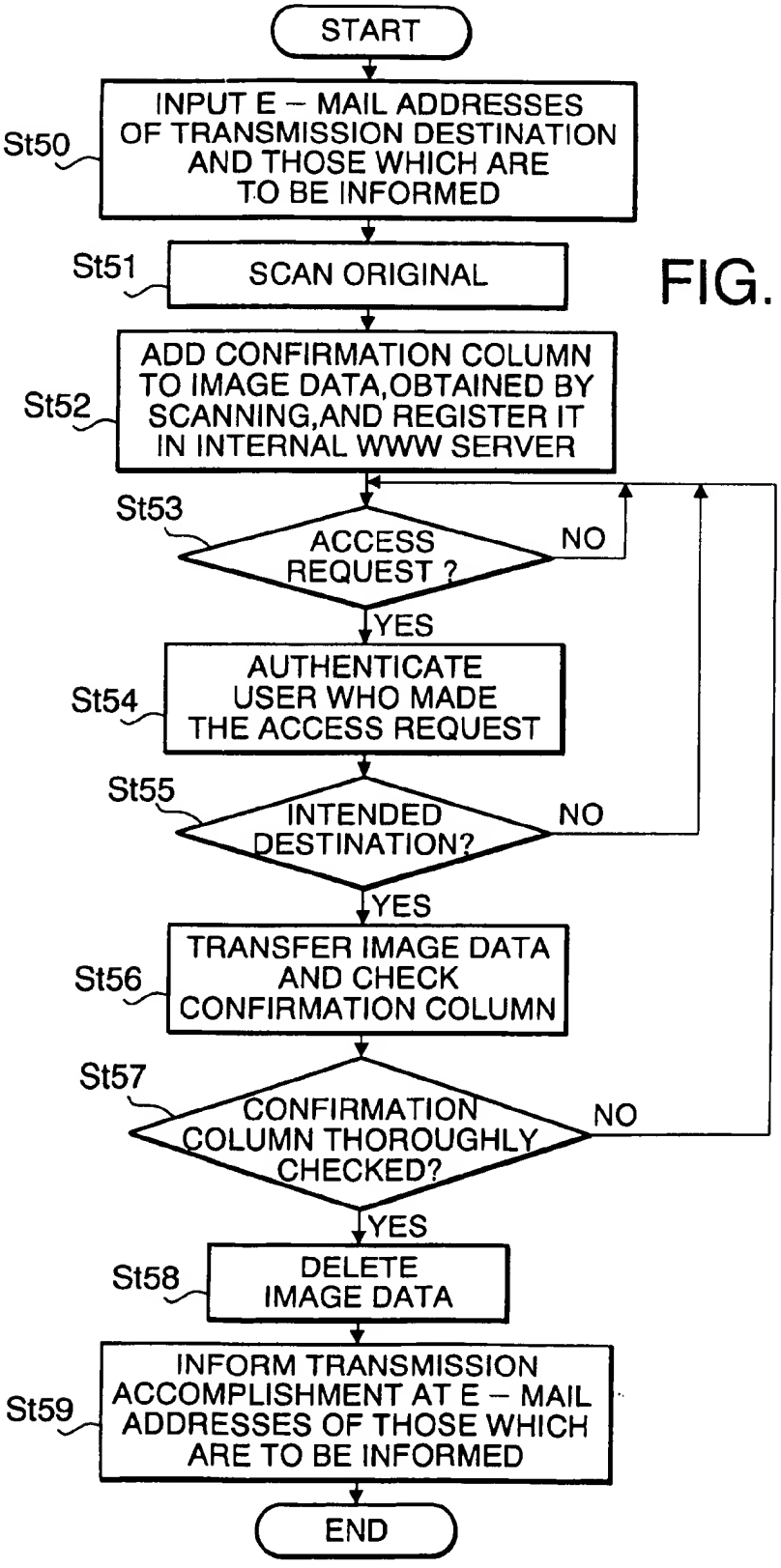

START
St50
INPUT E – MAIL ADDRESSES OF TRANSMISSION DESTINATION AND THOSE WHICH ARE TO BE INFORMED
St51
SCAN ORIGINAL
St52
ADD CONFIRMATION COLUMN TO IMAGE DATA,OBTAINED BY SCANNING,AND REGISTER IT IN INTERNAL WWW SERVER
St53
ACCESS REQUEST ?
NO
YES
St54
AUTHENTICATE USER WHO MADE THE ACCESS REQUEST
St55
INTENDED DESTINATION?
NO
YES
St56
TRANSFER IMAGE DATA AND CHECK CONFIRMATION COLUMN
St57
CONFIRMATION COLUMN THOROUGHLY CHECKED?
NO
YES
St58
DELETE IMAGE DATA
St59
INFORM TRANSMISSION ACCOMPLISHMENT AT E – MAIL ADDRESSES OF THOSE WHICH ARE TO BE INFORMED
END

FIG. 20

FIG. 21

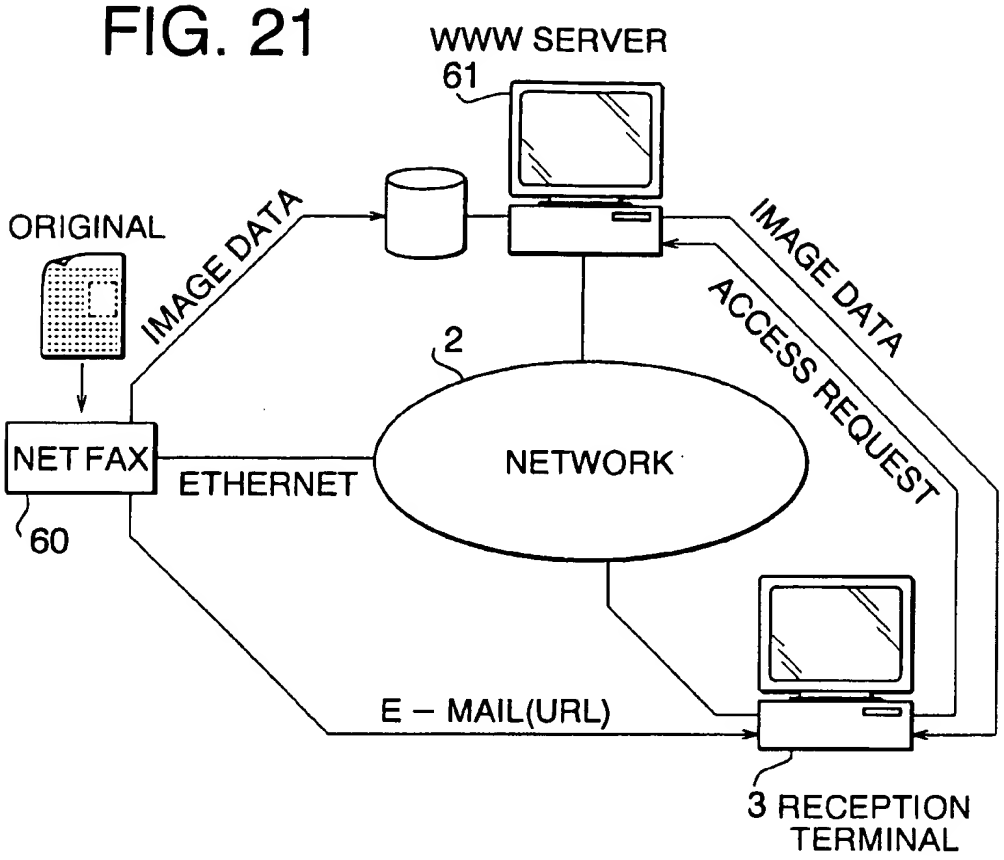
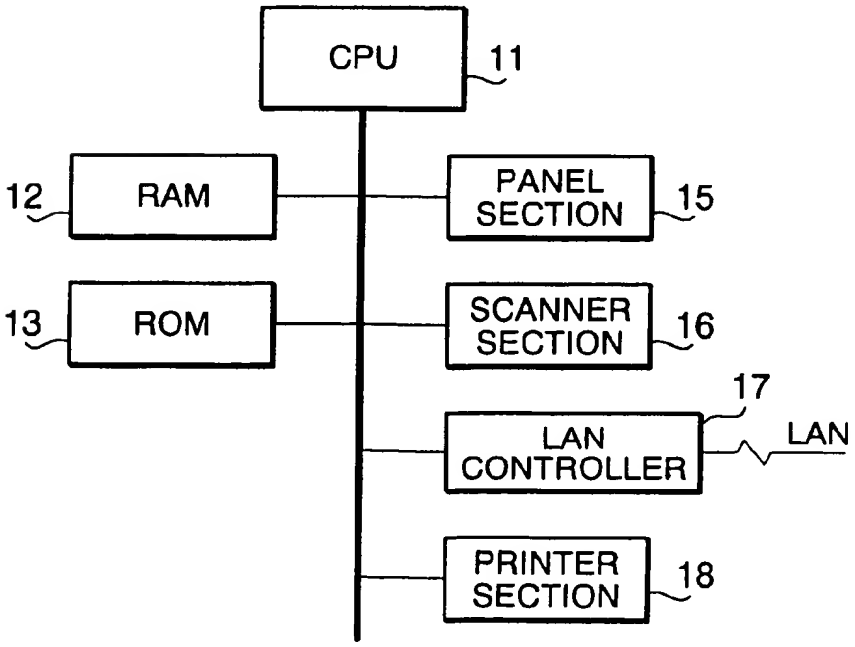

WWW SERVER
61
ORIGINAL
IMAGE DATA
IMAGE DATA
ACCESS REQUEST
2
NET FAX
ETHERNET
NETWORK
60
E – MAIL(URL)
3 RECEPTION TERMINAL

FIG. 22


CPU
11
12
RAM
PANEL SECTION
15
13
ROM
SCANNER SECTION
16
17
LAN CONTROLLER
LAN
PRINTER SECTION
18

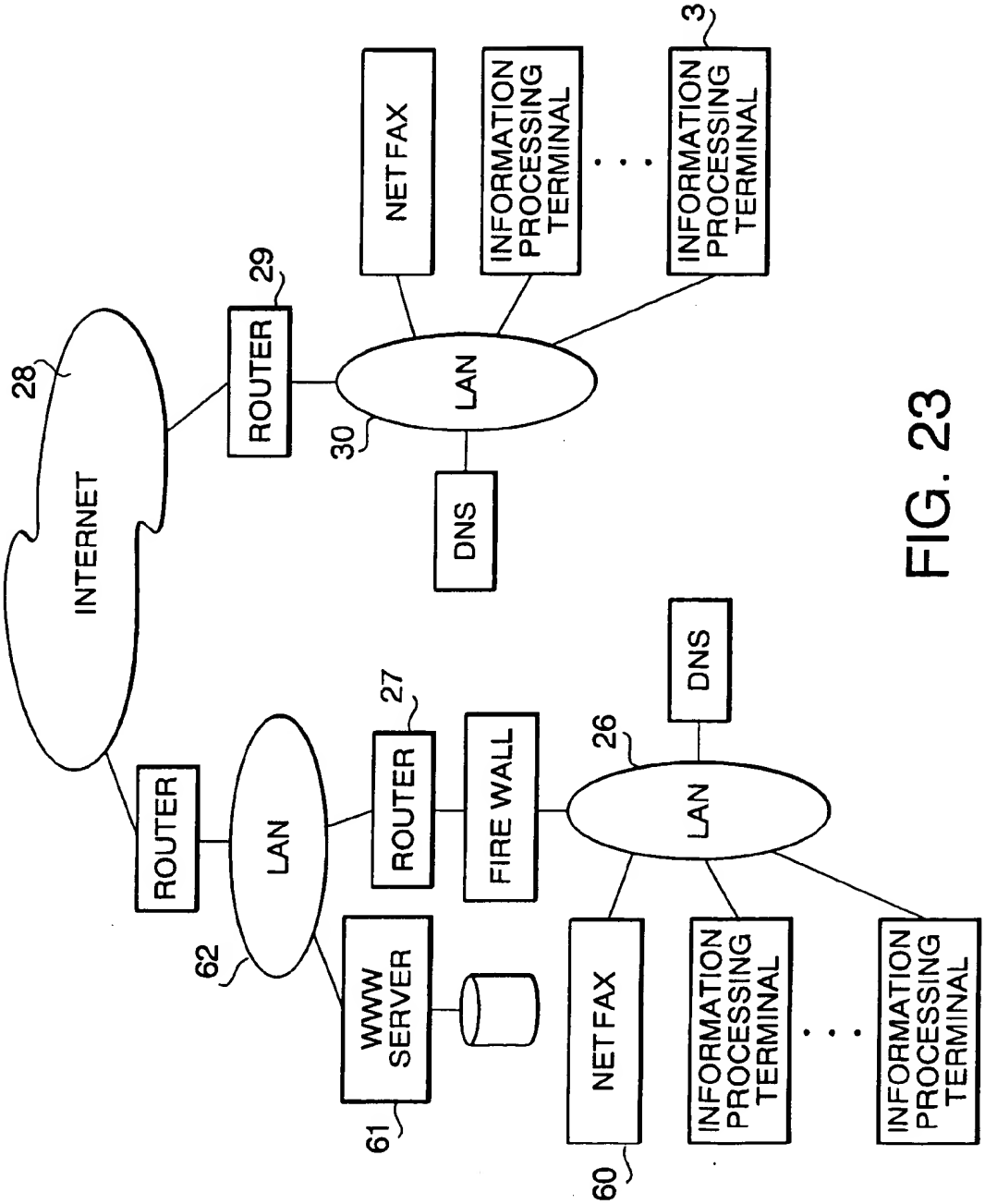

INTERNET
28
ROUTER
29
LAN
30
NET FAX
INFORMATION PROCESSING TERMINAL
INFORMATION PROCESSING TERMINAL
3
DNS
ROUTER
LAN
62
ROUTER
27
FIRE WALL
LAN
26
DNS
WWW SERVER
61
NET FAX
60
INFORMATION PROCESSING TERMINAL
INFORMATION PROCESSING TERMINAL

FIG. 23

FIG. 24

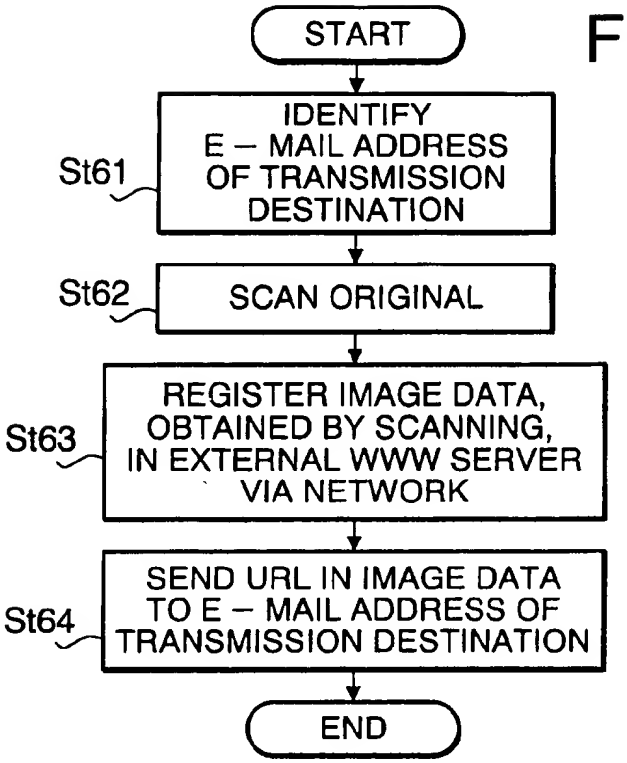

START
St61
IDENTIFY E – MAIL ADDRESS OF TRANSMISSION DESTINATION
St62
SCAN ORIGINAL
St63
REGISTER IMAGE DATA, OBTAINED BY SCANNING, IN EXTERNAL WWW SERVER VIA NETWORK
St64
SEND URL IN IMAGE DATA TO E – MAIL ADDRESS OF TRANSMISSION DESTINATION
END

FIG. 25

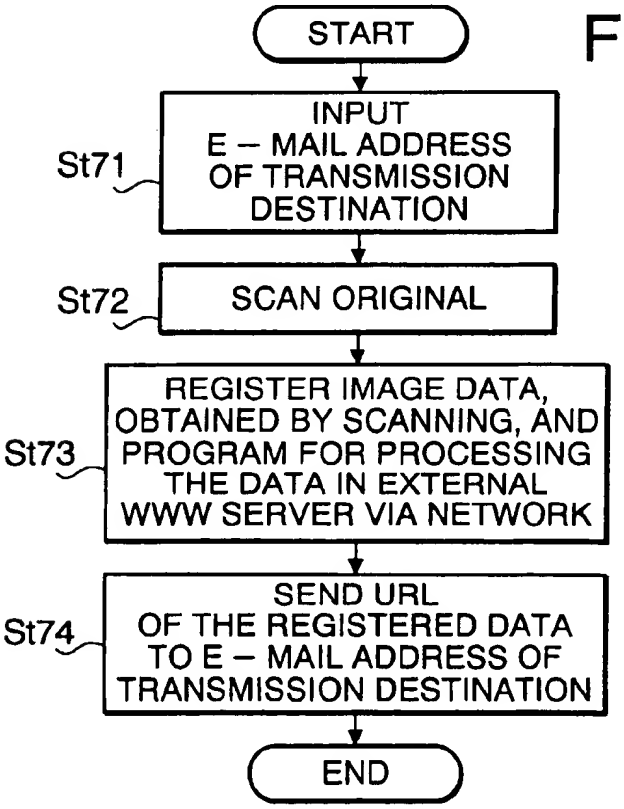

START
St71
INPUT E – MAIL ADDRESS OF TRANSMISSION DESTINATION
St72
SCAN ORIGINAL
St73
REGISTER IMAGE DATA, OBTAINED BY SCANNING, AND PROGRAM FOR PROCESSING THE DATA IN EXTERNAL WWW SERVER VIA NETWORK
St74
SEND URL OF THE REGISTERED DATA TO E – MAIL ADDRESS OF TRANSMISSION DESTINATION
END

FIG. 26

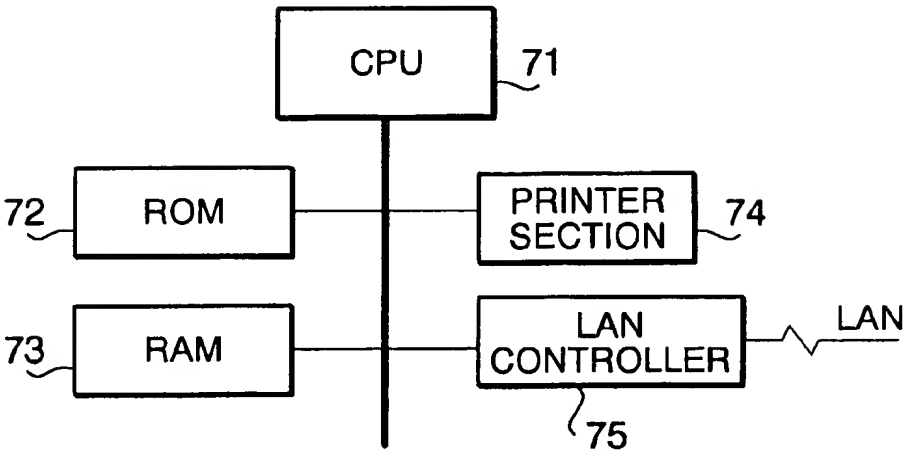

CPU
71
72
ROM
PRINTER SECTION
74
73
RAM
LAN CONTROLLER
LAN
75

FIG. 27

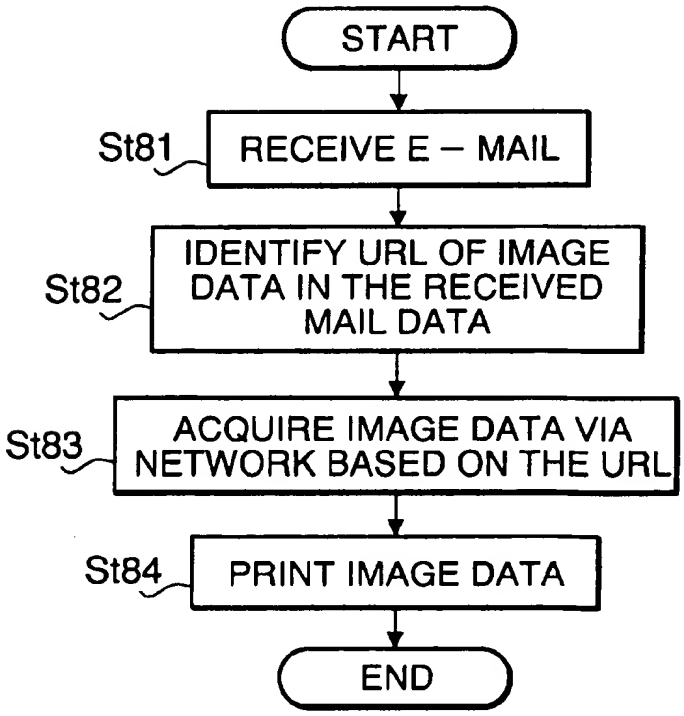

START
St81
RECEIVE E – MAIL
St82
IDENTIFY URL OF IMAGE DATA IN THE RECEIVED MAIL DATA
St83
ACQUIRE IMAGE DATA VIA NETWORK BASED ON THE URL
St84
PRINT IMAGE DATA
END

FIG. 28

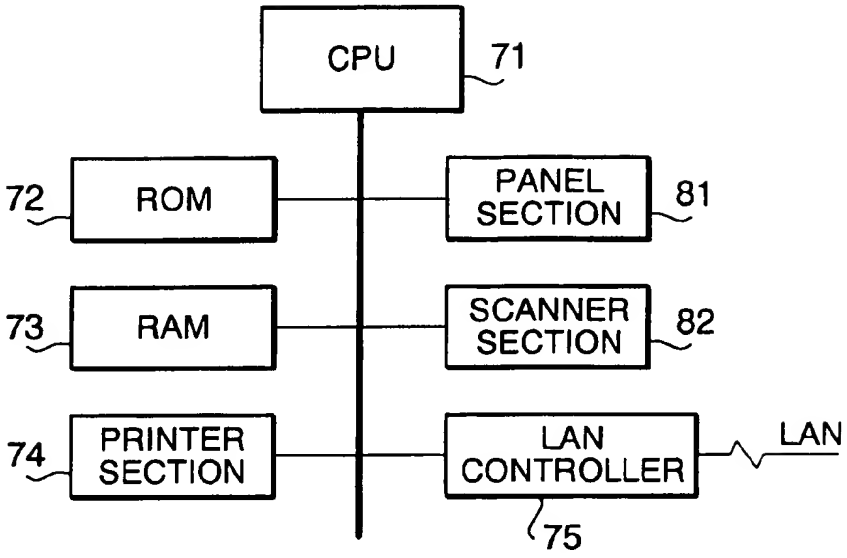
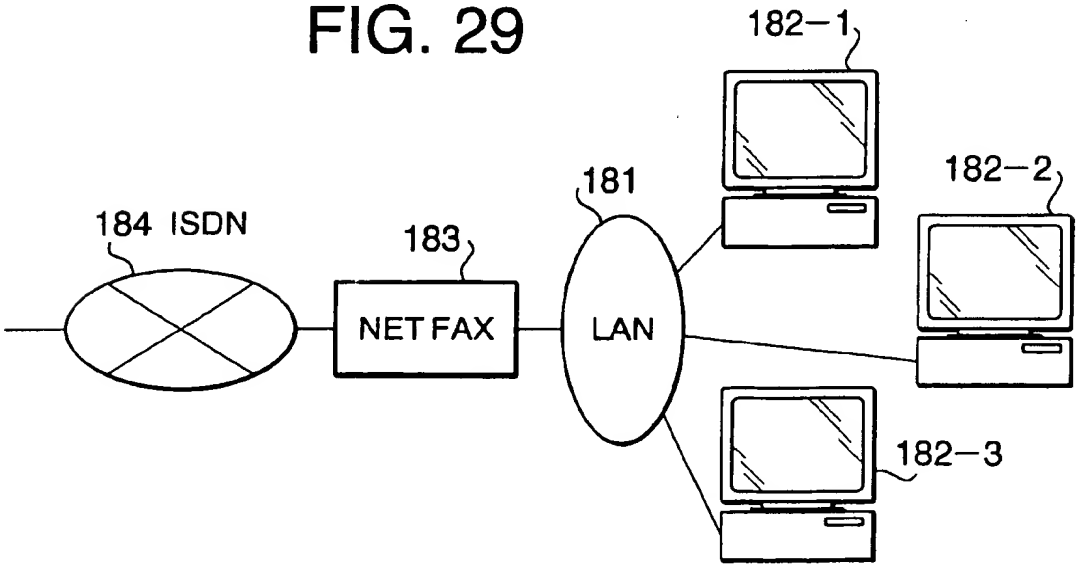

CPU
71
72
ROM
PANEL SECTION
81
73
RAM
SCANNER SECTION
82
74
PRINTER SECTION
LAN CONTROLLER
LAN
75

FIG. 29


182-1
182-2
181
184 ISDN
183
NET FAX
LAN
182-3

FACSIMILE COMMUNICATION METHOD AND FACSIMILE MACHINE

TECHNICAL FIELD

The present invention relates to a data communication method for communicating data of a large size, such as a still picture, a moving picture and audio data, via a network, and, more particularly, to a facsimile communication method and a facsimile machine, which transmit image data like facsimile data using an e-mail system over a network.

BACKGROUND ART

Recently, for the efficiency of works in an office, an information processing apparatuses provided in the office are connected via a LAN (Local Area Network) installed in the office. A facsimile machine receives facsimile data which has been sent via a public telecommunication network from another facsimile machine. This facsimile machine converts the received facsimile data to an e-mail for a personal destination and transmits this e-mail to an information processing terminal on the LAN to which the facsimile machine is connected.

Unexamined Japanese Patent Publication No. Hei 6-164645 discloses a facsimile communication system which performs such facsimile communications.

FIG. **29** schematically illustrates the facsimile communication system disclosed in the Unexamined Japanese Patent Publication No. Hei 6-164645. A plurality of information processing terminals **182-1**, **182-2** and **182-3** and a network connection type facsimile machine (NETFAX) **183** are connected to a LAN **181**. The NETFAX **183** connects to an ISDN (Integrated Services Digital Network).

Another facsimile machine scans a transmission original to read the image data of the original. The image data read by this facsimile machine is sent to the information processing terminal **182-1** on the LAN via the ISDN **184**. The facsimile machine transmits the image data via the ISDN **184** to the NETFAX **183** on the LAN with the telephone number of the NETFAX **183**. At this time, the e-mail address of the information processing terminal **182-1** is set to a subaddress included in a number informing service provided by the ISDN and is transmitted simultaneously.

Upon reception of image data from the facsimile machine, the NETFAX **183** converts the received image data to the transmission format of an e-mail and sends it to the e-mail address of the information processing terminal **182-1** that has been input as the subaddress. In an existing e-mail system built on the LAN **181**, an e-mail affixed with image data to be facsimiled is temporarily saved at a relay site or a reception site. That is, in the process of transmitting an e-mail (facsimile data including image data) to the information processing terminal **182-1** from the NETFAX **183**, the e-mail including image data is temporarily saved at a relay site or a reception site on the network.

As facsimile data is image data read from a transmission original, however, it has a large data size. If facsimile data is color image data, the data size becomes larger. Facsimile data with a large data size has a problem of greatly using up the capacities of a relay site and a reception site.

In the case where the NETFAX **183** makes multi-casting of an e-mail of facsimile data to multiple information processing terminals on the network, the facsimile data which has a larger data size than an ordinary e-mail is transmitted to every site, there is a problem of increasing the traffic of the network.

DISCLOSURE OF INVENTION

It is therefore an object of the present invention to provide a facsimile communication method and a facsimile communication machine, which can significantly suppress an increase in the traffic on a network by transmitting facsimile data via a LAN, WAN, Internet or other networks, or which do not use up the memory resource at a relay site and a reception site for an e-mail.

A facsimile communication method according to this invention which transmits facsimile data to a reception terminal from a facsimile machine via a communication network, a transmission process in the facsimile machine including the following steps:

(a) a step of saving image data of an original to be transmitted as facsimile data in a storage;

(b) a step of generating access information data for access to the image data, saved in the storage, from the reception terminal via the communication network;

(c) a step of sending the access information data to the reception terminal by an e-mail; and

(d) a step of transmitting the image data in the storage to the reception terminal from the facsimile machine by a communication protocol of a point-to-point data transfer form upon reception of an access request for the image data from the reception terminal.

A facsimile machine according to this invention acquires an e-mail address of a reception terminal, destined for the facsimile data, and saves image data of an original to be transmitted as facsimile data in a storage. Access information data for access to the image data, saved in the storage, from the reception terminal via the communication network is generated, and the access information data is sent to the e-mail address of the reception terminal by an e-mail. Upon reception of an access request for the image data from the reception terminal, the image data in the storage is transmitted to the reception terminal by a communication protocol of a point-to-point data transfer form.

According to this invention, only access information data for image data registered in a storage in a network is sent to a reception terminal by an e-mail, and image data is not sent directly to a transmission destination. Even in the case where large image data is transmitted to multiple destinations, therefore, it is unnecessary to send the same data to multiple sites so that the mail spools of destination sites are not occupied.

According to a facsimile communication method embodying this invention, a transmission process in a facsimile machine includes the following steps:

(a) a step of saving image data of an original to be transmitted as facsimile data in a server located on a network;

(b) a step of generating access information data for access to the image data, saved in the server, from the reception terminal via the communication network; and

(c) a step of sending the access information data to the reception terminal by an e-mail.

Further, a process in the server includes the following steps:

(d) a step of saving the image data received from the facsimile machine; and

(e) a step of transmitting the image data to the reception terminal by a communication protocol of a point-to-point data transfer form upon reception of an access request for the image data from the reception terminal.

A facsimile machine according to this invention acquires an e-mail address of a reception terminal on the communication network, and registers image data of an original to be transmitted as facsimile data in a server located on the communication network. Access information data for access to the image data, registered in the server, from the reception terminal via the communication network is generated, and the access information data is sent by e-mail to the e-mail address of the reception terminal. The server receives an access request sent out from the reception terminal and transmits the image data to the reception terminal by a communication protocol of a point-to-point data transfer form.

According to this invention, since it is unnecessary to register image data in a facsimile machine, a large-capacity hard disk can be removed from the facsimile machine so that the structure can be simplified.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** is a schematic diagram of a facsimile communication system according to the first embodiment;

FIG. **2** is a functional block diagram of a NETFAX according to the first embodiment;

FIG. **3** is a functional block diagram of a CPU in the NETFAX;

FIG. **4** is a flowchart of the first embodiment;

FIG. **5** is a diagram showing a network structure;

FIG. **6** is a structural diagram of image data turned into an HTML document;

FIG. **7** is a structural diagram of an e-mail for sending a URL;

FIG. **8** is a functional block diagram associated with a file deleting function according to the second embodiment;

FIG. **9** is a flowchart of the second embodiment;

FIG. **10** is a functional block diagram of a NETFAX according to the third embodiment;

FIG. **11** is a functional block diagram associated with a file deleting function according to the third embodiment;

FIG. **12** is a flowchart of the third embodiment;

FIG. **13** is a functional block diagram associated with a user authentication function according to the fourth embodiment;

FIG. **14** is a structural diagram of a password management table according to the fourth embodiment;

FIG. **15** is a flowchart of the fourth embodiment;

FIG. **16** is a functional block diagram associated with a user authentication function according to the fifth embodiment;

FIG. **17** is a structural diagram of an access confirmation column according to the fifth embodiment;

FIG. **18** is a flowchart of the fifth embodiment;

FIG. **19** is a functional block diagram associated with a transmission accomplishment informing function according to the sixth embodiment;

FIG. **20** is a flowchart of the sixth embodiment;

FIG. **21** is a schematic diagram of a facsimile communication system according to the seventh embodiment;

FIG. **22** is a functional block diagram of a NETFAX according to the seventh embodiment;

FIG. **23** is a diagram of a network structure;

FIG. **24** is a flowchart for image registration according to the seventh embodiment;

FIG. **25** is a flowchart for image registration according to the eighth embodiment;

FIG. **26** is a functional block diagram of an information processing terminal according to the ninth embodiment;

FIG. **27** is a flowchart of the ninth embodiment;

FIG. **28** is a functional block diagram when an information processing terminal is a NETFAX; and

FIG. **29** is a diagram exemplifying a conventional facsimile communication system.

BEST MODES FOR CARRYING OUT THE INVENTION

Embodiments of the present invention will now be described with reference to the drawings.

First Embodiment

FIG. **1** schematically illustrates a facsimile communication system according to the first embodiment. A network connection type facsimile machine (NETFAX) **1** sends facsimile data to a reception terminal **3** via a communication network **2**. The NETFAX **1** has a WWW (World Wide Web) server mechanism inside.

The NETFAX **1** scans an original after accepting the e-mail address of the reception terminal **3**. The image data of the scanned original is registered in a storage of the internal WWW server mechanism after being converted to the form which is externally accessible as an HTML (Hyper Text Markup Language) document. Meantime, a URL (Uniform Resource Locator) for the reception terminal **3** to access the image data of the NETFAX **1** via the communication network **2** is transmitted by e-mail to the reception terminal **3**.

When requiring acquisition of image data, the reception terminal **3** accesses the WWW server mechanism of the NETFAX **1** using the URL in the received e-mail and acquires the necessary image data in accordance with a point-to-point communication protocol.

FIG. **2** is a functional block diagram of the NETFAX **1**. In the NETFAX **1**, a CPU **11** is connected to a RAM **12**, a ROM **13**, an external storage **14**, a panel section **15**, a scanner section **16**, a LAN controller **17** and a printer section **18** via an internal bus. The NETFAX **1** is connectable to a public telecommunication network, though not illustrated, so that it can transmit and receive facsimile data.

The CPU **11** manages the general operation of the facsimile machine and operates with respect to the transmission of image data in accordance with the flowchart illustrated in FIG. **4**. A program which controls the operation of the CPU **11** is stored in the ROM **12**. The RAM **13** is used as a work area for data processing associated with transmission and reception processes for image data. The external storage **14** is a secondary memory device which is typified by a hard disk, and is used to save image data which is sent as facsimile data. The panel section **15** is an operation panel through which alphabets, numerals and symbols can be input, and permits an operator to input an e-mail address and a telephone number, etc. The scanner section **16** scans a transmission original to convert it to image data. The LAN controller **17** is an interface between the NETFAX **1** and the network **2**, and transmits and receives data via the network. The printer section **18** prints out image data received via the public telecommunication network or network.

FIG. **3** shows the structure of the functional blocks of the CPU **11**. A data compressor **21** compresses the image data of a transmission original, scanned by the scanner section **16**,

or image data included in facsimile data received via the public telecommunication network, in the format of JPEG, TIFF or the like. An HTML document generator **22** converts compressed image data to an HTML document, affixes a file name thereto and saves it in the external storage **14**. The file name and directory of the image data saved in the external storage **14** are given to a URL generator **23**. The URL generator **23** generates a URL which consists of elements, such as a protocol for accessing image data saved in the external storage **14**, a server name (NETFAX **1**) on the Internet where image data to be transmitted as image data is located, and the directory and file name in the external storage **14** which is storing image data. An e-mail generator **24** receives an e-mail address of a transmission destination which is input through the panel section **15**, or an e-mail address of a transmission destination specified by the sub-address of an ISDN line which has sent facsimile data. Then, the URL is transmitted to the e-mail address of the transmission destination to inform facsimile transmission. Meanwhile, a WWW server mechanism **25** equipped in the NETFAX **1** knows that the reception terminal **3** intends to access image data in the external storage using the URL. The WWW server mechanism **25** acquires image data from the external storage **14** in response to an access request received from the reception terminal **3**, and directly sends it to the reception terminal **3** in accordance with the HTTP.

The operation of the thus constituted facsimile communication system will be described.

FIG. **4** is a flowchart for the transmission process of the NETFAX **1**. As shown in FIG. **5**, the NETFAX **1** is located within the network of a LAN **26**, and can connect to an Internet **28** via a router **27**. Meanwhile, the Internet **28** can reach another LAN **30** via a router **29**. Connected within the network of the LAN **30** are a plurality of information processing terminals (including a facsimile) one of which becomes the reception terminal **3** that is the transmission destination of image data.

A description will be given of the case where the NETFAX **1** in the LAN **26** transmits image data via the Internet **28** to the reception terminal **3** in another LAN **30**. First, the e-mail address of the transmission destination or the reception terminal **3** on the network, which has been input through the panel section **15** by an operator, is input (St **1**). Next, the scanner section **16** scans a transmission original and converts it to image data (St **2**). The image data of the transmission original with a file name affixed thereto is saved in the external storage **14** (hard disk) (St **3**).

In the process from the scanning of the transmission original by the scanner section **16** to saving in the external storage **14**, compression of image data and structuring of an HTML document are performed. As shown in FIG. **6**, for example, image data is encoded in the TIFF format and this image data is structured into an HTML document. An HTML document can be accessed via a network by the point-to-point HTTP (Hyper Text Transfer Protocol).

An URL for access to image data registered in the external storage **14** is generated. As shown in FIG. **7**, an e-mail is prepared in which the URL for access to image data registered in the external storage **14** is written in the text of the e-mail. This e-mail is transmitted to the reception terminal **3** using the SMTP (Simple Mail Transfer Protocol) (St **4**).

The WWW server mechanism **25** receives a request for image data of the NETFAX **1** from the reception terminal **3**. The WWW server mechanism **25** acquires image data (facsimile data) with the requested file name from the external storage **14**, and transfers it to the IP address of the requesting reception terminal **3** using the HTTP.

When the NETFAX **1** relays the facsimile data received over the public telecommunication network to the reception terminal **2** on the network, image data is acquired from the facsimile data received through the public telecommunication network and is converted to an HTML document. This HTML document is saved in the external storage **14**, and a URL for access to image data (HTML document) in the external storage **14** is transmitted by e-mail to the reception terminal **3**.

According to the first embodiment, as apparent from the above, image data is saved in the external storage **14** in the form of an HTML document, only the access information data (URL) of the image data is sent by e-mail to the e-mail address of the transmission destination, and the reception terminal **3** accesses and acquires the image data of the NETFAX **1** by the HTTP, so that facsimile data (including image data) can be transferred to the reception terminal without going through a relay site and a reception site. This can prevent large image data from using up the capacity of the relay site and reception site.

Second Embodiment

FIG. **8** shows a functional block diagram associated with a function of deleting image data, which becomes unnecessary, from the storage. The fundamental system structure is the same as that of the first embodiment, except for the function of deleting image data from the storage.

When there is access to image data saved in the external storage **14**, the WWW server mechanism **25** leaves a log for the accessed file. An access detector **31** searches the log from the external storage **14** to identify the accessed image data.

A file deleting function **32** receives the directory and file name of image data, which has been externally accessed, from the access detector **31** and deletes this image data from the external storage **14**.

FIG. **9** shows a flowchart associated with facsimile data transmitting and deleting processes in the NETFAX **1**. The processes (St **11** to St **14**) from the identification of the e-mail address of the transmission destination, input through the panel section **15** by an operator, to the transmission of the image data of a transmission original to the e-mail address of the transmission destination are the same as those of the first embodiment. Specifically, after the e-mail address of the transmission destination is identified (St **11**), the transmission original is scanned by the scanner section **16** (St **12**), the image data scanned by the scanner section **6** is registered in the external storage **14** (St **13**), and the URL of the image data registered in the external storage **14** is transmitted to the e-mail address of the transmission destination (St **14**).

The access detector **32** searches the log, left in the external storage **14** by the WWW server mechanism **25**, to monitor whether or not access to the image data registered in the external storage **14** has been made from outside (St **15**). The file deleting function **32** which has been informed of the file name, etc. of the externally accessed image data deletes this image data from the external storage **14** (St **16**).

Since the accessed image data is deleted from the external storage **14** after detecting that the facsimile data (image data) saved in the external storage **14** has been accessed from outside as apparent from the above, it is possible to prevent image data which has become unnecessary from remaining in the external storage **14** for a long time, thus ensuring the efficient use of the area of a hard disk.

Third Embodiment

FIG. **10** shows the functional blocks of a NETFAX according to the third embodiment. The basic system struc-

ture is the same as those of the first and second embodiments. The NETFAX is provided with a timer section **19** for measuring the time that has elapsed since the registration of image data in the external storage **14**.

FIG. **11** depicts the functional blocks of the portion that is associated with a function of deleting image data. A time-exceeded file detector **33** manages an accessible time input through the panel section **15** by an operator. As the time-exceeded file detector **33** informs the file deleting function **32** of the file name of the image data whose accessible time has been exceeded, the file deleting function **32** deletes the image data from the external storage **14**.

FIG. **12** illustrates a flowchart about image data transmitting and deleting processes in the NETFAX. The time in which the e-mail address of the transmission destination, input through the panel section **15** by the operator, and image data to be transmitted are held in the external storage **14** are identified (St **21**).

As in the first embodiment, the transmission original is scanned by the scanner section **16** (St **22**), the image data scanned by the scanner section **16** is registered in the external storage **14** (St **23**), and the URL of the image data registered in the external storage **14** is transmitted to the e-mail address of the transmission destination (St **24**).

The time-exceeded file detector **33** compares the time elapsed since the registration of the image data saved in the external storage **14** with the accessible time for this image data (St **25**). When there is a file of image data with the elapsed time exceeding the accessible time, the file deleting function **32** is informed of its file name and it is deleted from the external storage **14** (St **26**).

Because the accessible time of image data registered in the external storage is managed and the image data whose accessible time is reached is deleted, it is possible to prevent image data which has become unnecessary from remaining in the external storage **14** for a long time and occupying the area in a hard disk.

Fourth Embodiment

FIG. **13** shows the functional blocks of a function of authenticating a user who has requested access to image data and a file deleting function of the NETFAX. The NETFAX is equipped with a user authentication mechanism **41** which authenticates a user who has requested access to image data. The user authentication mechanism **41** refers to a password management table **42** to discriminate if the access request has come from a person who wanted to transmit image data.

FIG. **14** shows the structure of the password management table **42**. Set in the password management table **42** are address information of users of transmission destinations, the names of files where image data are saved, and passwords. The informing e-mail generator **24** inserts a password in an e-mail in addition to a URL. The password may be the one input through the panel section **15** by an operator or the one which is mechanically assigned by the informing e-mail generator **24**.

FIG. **15** presents a flowchart from the input of the e-mail address of a transmission destination to the deletion of transmitted image data. As in the first embodiment, the e-mail address of the transmission destination input through the panel section **15** by the operator is identified (St **31**), the transmission original is scanned by the scanner section **16** (St **32**), and the image data scanned by the scanner section **16** is registered in the external storage **14** (St **33**).

A password is added to an e-mail by which a URL for accessing image data registered in the external storage **14** is to be transmitted, and the e-mail is sent to the e-mail address of the transmission destination (St **34**).

At the time of accessing image data using the URL affixed to the e-mail, the reception terminal **3** also sends the password affixed to that URL.

When detecting an access request from a data stream from the LAN **25** (St **35**), the user authentication mechanism **41** acquires the password of the user, who has made an access request, from the password management table **42** for authentication (St **36**). When the passwords match with each other, the user having made the access request is permitted to access (St **37**). As a result, the WWW server mechanism **25** transmits the image data (HTML document) in the external storage **14** to the user having made the access request in accordance with the HTTP (St **38**). The image data which has been accessed externally is deleted from the external storage **14** by the file deleting function **32** (St **39**).

As apparent from the above, the provision of the mechanism which authenticates the user who has made an access request can permit image data to be sent only to a specific person by the WWW server which is used by unspecified individuals.

As the names of files to be transmitted can be registered in the password management table **42** as shown in FIG. **14**, it is possible to authenticate users who have made access requests file by file.

Fifth Embodiment

FIG. **16** depicts the functional blocks associated with an access confirming function and a user authentication function of the NETFAX. An access confirmation column **44** is affixed to image data, which should be transmitted to multiple destinations and is saved in the external storage **14**. FIG. **17** shows the structure of the access confirmation column **44**. An access detector **43** searches the log the WWW server mechanism **25** leaves with respect to the accessed file, and, upon detection of a destination for multi-casting, checks the associated portion in the access confirmation column **44**. When all the destinations for multi-casting, registered in the access confirmation column **44**, are checked, its image data is deleted.

FIG. **18** is a flowchart from the input of an e-mail address to the deletion of data after checking access.

First, when the e-mail address of the transmission destination is input (St **41**), the original is scanned to be converted to image data (St **42**). Next, the access confirmation column **44** is affixed to the image data acquired through scanning and is registered in the external storage **14** (St **43**). When multi-casting is specified, the access confirmation column **44** where destinations for multi-casting associated with the e-mail addresses of the destinations for multi-casting have been registered is affixed to the image data. This is accomplished by the HTML description.

When there is access to image data thereafter (St **44**), the same authentication as done in the fourth embodiment is carried out (St **45**, St **46**). If the access request has come from a destination for multi-casting, the WWW server mechanism **25** transmits image data according to the HTTP. When the access detector **43** checks the log and identifies the transmission destination which has accessed the image data, it sets a flag indicating the access event in the associated portion in the access confirmation column **44** (St **47**).

At the time the access confirmation column **44** is thoroughly checked (St **48**), it is understood that all the destinations for multi-casting could have accessed the image data, so that this image data is deleted then (St **49**).

Since the access confirmation column **44** having destinations for multi-casting registered therein is affixed to image data and saved, it is determined that every destination for multi-casting has confirmed the data upon detection of the access confirmation column **44** being thoroughly checked, and the data is then deleted, it is possible to prevent data from being stored unnecessarily and also prevent the data from being deleted without being sent to predetermined persons.

Sixth Embodiment

FIG. **19** presents a functional block diagram for the NETFAX to inform other information processing terminals on a network of the accomplishment of transmission of image data.

As in the fifth embodiment, the access confirmation column **44** is affixed to image data to be saved in the external storage **14**, and the access detector **45** checks the access confirmation column **44** and recognizes that all the destinations for multi-casting have accessed.

Further, the address information of information processing terminals which are to be informed of the accomplishment of transmission by a transmission accomplishment informing function **51**. The address information may be input through the panel section **15** by an operator or may be informed by a transmission scheme such as an e-mail. When informed of access being made by all the destinations for multi-casting from the access detector **45**, the transmission accomplishment informing function **51** makes acknowledgement to that effect to the addresses of the information processing terminals at the destinations for multi-casting.

FIG. **20** is a flowchart which includes a process of informing the accomplishment of transmission.

The e-mail addresses of the transmission destinations are input and the e-mail addresses on the network of the information processing terminals which are to be informed of the accomplishment of transmission are input too (St **50**). The e-mail addresses at which the accomplishment of transmission should be informed are given to the transmission accomplishment informing function **51**.

The scanner section **16** scans the original (St **51**) and registers its image data in the external storage **14** (St **52**). At the time every transmission destination having accessed the image data in the external storage **14** is confirmed (St **53** to St **57**), the access detector **45** reports such to the file deleting function **32** and the transmission accomplishment informing function **51**.

Consequently, the file deleting function **32** deletes the image data from the external storage **14** (St **58**), and the transmission accomplishment informing function **51** sends an e-mail indicative of the completion of transmission at the e-mail addresses to be informed (St **59**).

Because the terminals which are requesting the acknowledgement of the accomplishment of transmission are informed of the accomplishment of transmission when the transmission of image data is completed, it is possible to know the sure transmission of data to where it should be sent at the place where the data has been registered.

Although the transmission accomplishment informing function is informed of the accomplishment of transmission on the condition that access has been acknowledged according to the sixth embodiment, modifications designed to inform the transmission accomplishment informing function of the accomplishment of transmission after reception of image reception information data indicating the reception of image data from the reception terminal **3** will be described individually. Programming should be designed in such a way that simple clicking of the reception confirmation screen affixed to image data at the reception terminal **3** allows access to the NETFAX **1** to inform the image reception information data.

In the NETFAX **1**, the image reception information data which is sent back via the network from the reception terminal that has received the image data and access information data for access by the reception terminal **3** at the time of sending this image reception information data back to the NETFAX **1** are affixed to the image data saved in the external storage **14**. When there is an access request from the reception terminal **3**, data including the image reception information data and access information data is affixed to the image data and is transmitted together.

At the reception terminal **3**, the reception confirmation screen shown at the end of the image data is clicked. When the reception confirmation screen is clicked, the image reception information data is transmitted to the NETFAX **1** based on the access information data that has been linked to this screen.

The NETFAX **1** recognizes the reception of the image data at the reception terminal **3** by identifying the image reception information data sent back from the reception terminal **3**, and sends an e-mail whose content indicates the accomplishment of transmission to the e-mail address of the acknowledgment requesting device.

Seventh Embodiment

FIG. **21** is a system structural diagram of a facsimile communication system which has a server for image data located on a network.

In the above-described first to sixth embodiments, image data to be transmitted is registered in the external storage **14** equipped in the NETFAX **1** and the NETFAX **1** itself serves as a WWW server.

According to this seventh embodiment, the NETFAX does not itself have a function as a server, and an image is registered in a server which is operating on another host on a network, thereby accomplishing the same function of each embodiment discussed above.

A NETFAX **60** comprises the data compressor **21**, the HTML document generator **22**, the URL generator **23** and the informing e-mail generator **24**, which are included in the functional blocks of the NETFAX **1** illustrated in FIG. **3**. Further provided is a function of registering an HTML document of image data, generated by the HTML document generator **22**, in a WWW server **61** on the network **2**. The URL generator **23** generates a URL for access to the image data in the WWW server **61**.

FIG. **22** shows the functional blocks of the NETFAX **60**. As shown in this figure, the structure is the functional blocks shown in FIG. **2** from which the hard disk (external storage **14**) is removed. This is because the NETFAX **60** need not have a large-capacity storage.

FIG. **23** shows a network structure to which this embodiment is adapted. As shown in this figure, the NETFAX **60** is located on the LAN **26** and the WWW server **61** is located on a LAN **62**. The WWW server **61** is located outside the fire wall provided at the entrance of the LAN **26** as viewed from the reception terminal **3**.

If the LAN **26** on which the NETFAX **60** is located can be accessed directly by the reception terminal **3**, the WWW server **61** may be placed on the LAN **26**.

FIG. **24** is a flowchart for registering image data in the WWW server **61** provided on the network. When the NETFAX **60** identifies the e-mail address of the reception terminal **3** which has been input through the panel section **15** by an operator (St **61**), the scanner section **16** scans the transmission original to convert it to image data (St **62**) and the image data is registered in the form of an HTML document in the WWW server **61** on the network (St **63**). Meanwhile, a URL for accessing the image data registered in the WWW server **61** is generated and sent by e-mail to the reception terminal **3** (St **64**).

The reception terminal **3** receives the e-mail. The WWW server **61** is accessed by the HTTP using the URL in the e-mail for the acquisition of the image data without going through the reception site.

As discussed above, providing the host on the network with the server eliminates the need for a large-capacity storage in the NETFAX **60**, so that the structure of the NETFAX **60** can be simplified.

Eighth Embodiment

In the same system structure as that of the seventh embodiment, a program which can accomplish display, modification, deletion, etc. of image data is attached to image data to be registered in the WWW server **61** and is registered together.

FIG. **25** is a flowchart up to the transmission of an e-mail for informing image data to the reception terminal **3**. When the NETFAX **60** identifies the e-mail address of the reception terminal **3** which has been input through the panel section **15** by an operator (St **71**), the scanner section **16** scans the transmission original to convert it to image data (St **72**) and the image data is registered in the form of an HTML document in the WWW server **61** on the network (St **73**). At this time, the program which handles the image data is affixed to the HTML document of the image data. Meanwhile, a URL for accessing the image data registered in the WWW server **61** is generated and sent by e-mail to the reception terminal **3** (St **74**).

The reception terminal **3** receives the e-mail. The WWW server **61** is accessed by the HTTP using the URL in the e-mail for the acquisition of the program, which handles the image data, together with the image data.

At the reception terminal **3**, as this program is invoked and is used together with the received image data, the image data can be displayed, modified and erased even if the reception terminal **3** does not have the function of processing image data. For example, the reception terminal **3** which does not have a viewer function can display image data saved in the WWW server **61**.

It is to be noted that when access by the reception terminal **3** is detected in the WWW server **61**, the program may be invoked on the server to erase data from the server **61** storing that data, or display the data in enlargement, or allow a password to be input.

Further, the same advantages can be obtained by providing the WWW server **61**, located on the network, with the file deleting function, user authentication function and transmission accomplishment informing function, which have been explained in the above-described second to sixth embodiments, singularly or in any combination.

Although the foregoing description has been given mainly with reference to the case where the transmission original is scanned by the NETFAX **1** or **60** and the e-mail address is input through the panel section **15** by an operator, it may be likewise applied to the case where the NETFAX **1** or **60** relays image data, received from the public telecommunication network, to the reception terminal **3**. In this case, the e-mail address of the transmission destination can be designated by the subaddress of the ISDN line.

Ninth Embodiment

FIG. **26** shows the functional blocks of an information processing terminal which is used as the reception terminal **3** in the above-described first to eighth embodiments. It comprises a CPU **71** which controls the apparatus, a ROM **72** where a program is stored, a RAM **73** which is used for data for the program, a printer section **74** which prints received image data, and an LAN controller **75** which executes data transmission and reception via a network.

FIG. **27** is a flowchart for acquiring image data from the NETFAX **1** or the WWW server **61**. First, an e-mail is received from the sender (St **81**). A URL indicative of the location of the content of image data is identified in the received e-mail (St **82**). Using this URL and according to the HTTP, the NETFAX **1** or the WWW server **61** which has the target image data is accessed and image data is received from there (St **83**). Thereafter, it is printed by the printer section **74** to acquire the intended original.

FIG. **28** shows functional blocks when the reception terminal **3** is a NETFAX. It comprises a panel section **81** for inputting a telephone number or the like, and a scanner section **82** which scans a transmission original.

Although the foregoing description has been given of the transmission of image data in facsimile communications, this invention is not limited to facsimile communications. It is also adapted to the transmission of data with a large data size, such as a moving picture, audio information or large-capacity text data.

In the network structure illustrated in FIG. **5**, audio information or moving picture information saved on a hard disk of an information processing terminal which belongs to the LAN **26** is transmitted to a single or a plurality of information processing terminals via the LAN **26** or the Internet **28**.

When there is generated audio information, moving picture information or still picture information to be transmitted from an information processing terminal which becomes a transmission node to another information processing terminal which becomes a reception node, the audio information, moving picture information or still picture information is saved in the storage of the information processing terminal which becomes the transmission node or in the storage on the network, and a URL for access to the data in the storage is prepared and sent by e-mail to the e-mail address of another information processing terminal which becomes the reception node.

When the data put on an electronic bulletin board on a company LAN has a large size, the data is saved on the hard disk of a server located on the LAN and a URL for accessing data saved in the server is transmitted by e-mail to multiple clients on the LAN. In this case, the data is registered in the server and the terminal which executes multi-casting of the URL becomes the transmission node and the clients become the reception nodes.

Industrial Applicability

This invention is a data communication method suitable for transmitting still pictures, moving pictures, sounds or text data, which is too large to transmit by e-mail via a network.

What is claimed is:

1. An internet facsimile for relaying image data received from an originator via a telephone line to a recipient via a communication network comprising:

a reception section that receives said image data and addresses of a plurality of recipients, each recipient to receive said image data, from the originator via the communication network;

a storage that stores said image data received by said reception section;

a multicast section that multicasts said image data stored in said storage to the addresses of each of the plurality of recipients received by said reception section, via the communication network;

a notification section that transmits a completion notification to a terminal designated before the multicast, after receiving notifications from all the recipients via the communication network, each notification indicative of reception of said image data;

a URL generating section that generates URL used to directly request said image data to a WWW server after said image data is stored in said storage, said URL including a protocol type for designating a communication protocol of a point-to-point data transfer, a host name of said WWW server on the communication network, and a file name associated with said image data stored in said storage; and

a mailing section that mails an e-mail comprising a header including an e-mail address of the recipient as a destination address, and a body including the generated URL and not including said image data;

wherein said multicast section comprises a WWW server with the URL, and when a request for said image data is received from the recipient, said multicast section fetches said image data from said storage, and transmits said image data to the recipient by the communication protocol of the point-to-point data transfer;

wherein said WWW server transits a program along with said image data to the recipient, said program comprising:

displaying an input image on a display of the recipient when the recipient receives said image data; and

transmitting the notification indicative of the reception of said image data to said WWW server when a part of the displayed image is clicked on.

2. The facsimile device according to claim 1, further comprising a deleting system that deletes said image data saved in storage upon confirmation that all recipients to which multicasting of said image data has been made have accessed said image data.

3. The internet facsimile according to claim 1, further comprising:

a system that adds image reception information data to said image data saved in said storage, said image reception information data being sent back, via said communication network to said facsimile from said recipient that receives said image data, and a URL for accessing a WWW server from said recipient via said communication network, when said image reception information data is sent back to said facsimile; and

a system that confirms that said recipient has received said image data by identifying said image reception information data sent back from said recipient based on said URL.

4. The internet facsimile according to claim 1, further comprising a program for handling image data, said program being attached to said image data saved in said storage.

5. The internet facsimile according to claim 1, further comprising a system that acquires an e-mail address of said recipient from address information input by an operator via an operation panel.

6. The internet facsimile according to claim 1, further comprising a system that acquires an e-mail address of said recipient from address information sent together with said image data from a public telecommunications network.

7. An Internet facsimile for relaying image data received from an originator via a telephone line to a recipient via a communication network comprising:

a reception section that receives image data and addresses of a plurality of recipients, each recipient to receive said image data, from the originator via the communication network;

a storage that stores said image data received by said reception section;

a multicast section that, whenever the recipient accesses said image data stored in said storage, sequentially transmits said image data to an address of the recipient via the communication network;

a notification section that transmits a completion notification to a terminal designated before multicast, after confirming that all the recipients have accessed said image data stored in said storage;

a URL generating section that generates URL used to directly request said image data to a WWW server after said image data is stored in said storage, said URL including a protocol type for designating a communication protocol of a point-to-point data transfer, a host name of said WWW server on the communication network, and a file name associated with said image data stored in said storage; and

a mailing section that mails an e-mail comprising a header including an e-mail address of the recipient as a destination address, and a body including the generated URL and not including said image data;

wherein said multicast section comprises a WWW server with the URL, and when a request for said image data is received from the recipient, said multicast section fetches said image data from said storage, and transmits said image data to the recipient by the communication protocol of the point-to-point data transfer;

wherein said WWW server transits a program along with said image data to the recipient, said program comprising:

displaying an input image on a display of the recipient when the recipient receives said image data; and

transmitting the notification indicative of the reception of said image data to said WWW server when a part of the displayed image clicked on.

8. The internet facsimile according to claim 7, further comprising a system that saves an access confirmation column provided with check fields associated with each of said plurality of recipients to which multicasting of said URL is to be made, the access confirmation column being attached to the received image data; and

a system that, when said image data is accessed by said recipient, sets data indicative of access into said check field of said recipient that has accessed said image data.

9. The internet facsimile according to claim 7, further comprising a deleting section that deletes said image data saved in storage upon confirmation that all recipients to which multicasting of said image data has been made have accessed said image data.

10. The internet facsimile according to claim 7, further comprising:

a system that adds image reception information data to said image data saved in said storage, said image reception information data being sent back, via said communication network to said facsimile from said recipient that receives said image data, and a URL for accessing a WWW server from said recipient via said communication network, when said image reception information data is sent back to said facsimile; and

a system that confirms that said recipient has received said image data by identifying said image reception information data sent back from said recipient based on said URL.

11. The internet facsimile according to claim 7, further comprising a program for handling image data, said program being fixed to said image data saved in said storage.

12. The internet facsimile according to claim 7, further comprising a system that acquires an e-mail address of said recipient from address information input by an operator via an operation panel.

13. The internet facsimile according to claim 7, further comprising a system that acquires an e-mail address of said recipient from address information sent together with said image data from a public telecommunications network.

14. A method for relaying image data received from an originator via a telephone line to a recipient by an internet facsimile via a communication network, comprising;

(a) receiving image data and addresses of a plurality of recipients, each recipient to receive the image data, from the originator via the communication network;

(b) storing the image data received in a storage;

(c) multicasting the image data stored in the storage to each received address of the plurality of recipients via the communication network;

(d) transmitting a completion notification to a terminal designated before multicasting, after receiving notifications from all the recipients via the communication network, each notification indicative of reception of the image data by the recipient;

(e) adding image reception information data to the image data saved in the storage, the image reception information data being sent back, via the communication network to the facsimile from the recipient that receives the image data, and a URL that access a WWW server from the recipient via the communication network when the image reception information data is sent back to the facsimile;

(f) confirming that the recipient has received the image data by identifying the image reception information data sent back from the recipient based on the URL;

wherein the WWW server transmits a program along with the image data to the recipient, the program comprising:

displaying an image data on a display of the recipient when the recipient receives the image data;

transmitting the notification indicative of the reception of the image data to the WWW server when a part of the displayed input image is clicked on.

15. The method for relaying image data according to claim 14, further comprising acquiring an e-mail address of the recipient from address information input by an operator via an operation panel.

16. The method for relaying image data according to claim 14, further comprising acquiring an e-mail address of the recipient from address information sent together with the image data from a public telecommunications network.

17. A method for relaying image data received from an originator via a telephone line to a recipient by an internet facsimile via a communication network, comprising:

(a) receiving image data and addresses of a plurality of recipients, each recipient to receive the image data, from the originator via the communication network;

(b) storing the image data received in a storage;

(c) sequentially transmitting the image data to an address of the recipient via the communication network whenever the recipient accesses the image data stored in the storage;

(d) transmitting a completion notification to a terminal designated before sequential transmitting, after confirming that all the recipients accessed the image data stored in the storage;

(e) adding image reception information data to the image data saved in the storage, the image reception information data being sent back, via the communication network to the facsimile from the recipient that receives the image data, and a URL for accessing a WWW server from the recipient via the communication network when the image reception information data is sent back to the facsimile;

(f) confirming that the recipient has received the image data by identifying the image reception information data sent back from the recipient based on the URL;

(g) the WWW server transmitting a program along with the image data to the recipient, the program comprising:

displaying an input image data on a display of the recipient when the recipient receives the image data;

transmitting the notification indicative of the reception of the image data to the WWW server when a part of the displayed input image is clicked on.

18. The method for relaying image data according to claim 17, further comprising deleting the image data saved in storage upon confirmation that all recipients to which the image data was sequentially transmitted accessed the image data.

19. The method for relaying image data according to claim 17, further comprising deleting the image data saved in storage upon confirmation that all recipients to which sequential transmitting of the image data has been made have accessed the image data.

20. The method for relaying image data according to claim 17, further comprising acquiring an e-mail address of the recipient from address information input by an operator via an operation panel.

21. The method for relaying image data according to claim 17, further comprising acquiring an e-mail address of the recipient from address information sent together with the image data from a public telecommunications network.

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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,208,426 B1
DATED : March 27, 2001
INVENTOR(S) : K. Saito et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 14, claim 7,
Line 53, after "image" insert -- is --.

Signed and Sealed this

Eleventh Day of December, 2001

Attest:

Nicholas P. Godici

Attesting Officer

NICHOLAS P. GODICI
Acting Director of the United States Patent and Trademark Office